NOISE AND VIBRATION IMPACT REPORT
for the
TOPGOLF ONTARIO PROJECT
4th STREET & N. ARCHIBALD AVENUE
ONTARIO, SAN BERNARDINO COUNTY, CA 91764

Prepared for:

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March 2019

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A. NOISE IMPACTS ANALYSIS

1. INTRODUCTION

The purpose of this report is to address the construction and operational noise impacts of the Topgolf Ontario Project ("Proposed Project"), located at the southeast corner of 4th Street and N. Archibald Street ("Project Site"). This noise impact report evaluates the potential for noise and groundborne vibration impacts resulting from the development of the Proposed Project, including impacts associated with a substantial temporary and/or permanent increase in ambient noise levels in the vicinity of the Project Site; exposure of people in the vicinity of the Project Site to excessive noise levels, groundborne vibration, or groundborne noise levels; and whether this exposure is in excess of standards established in the local general plan or noise ordinance. Mitigation measures intended to reduce noise and vibration impacts are proposed, where appropriate, to avoid or reduce significant impacts of the Proposed Project.

Data used to prepare this analysis was obtained from the City of Ontario Policy Plan Safety Element (Chapter S4 Noise Hazards), the City of Ontario Municipal Code ("OMC"), the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment (Harris, Miller, Miller & Hanson, 2006), California Department of Transportation (Caltrans) Technical Noise Supplement (2009), Caltrans Transportation and Construction Vibration Guidance Manual (2013), and by measuring and modeling existing and future noise levels at the Project Site and surrounding areas. The noise measurement data and calculations cited in this report are provided in Appendix A.

A. Project Site Location and Setting

As shown in Figure 1, Project Location Map, on page 3, the Project Site is located on the southeast corner of 4th Street and N. Archibald Avenue in the City of Ontario within the County of San Bernardino. The Project Site comprises of two parcels and occupies approximately 13.31 acres (579,698 square feet) of vacant, undeveloped land, on the northwestern-most portion of the Cucamonga-Guasti Regional Park. Industrial land uses are located north of the Project Site, across 4th Street. Multi-family residential buildings are located west of the Project Site, across N. Archibald Avenue. The remaining portions of the Cucamonga-Guasti Regional Park are located east and south of the Project Site, which contains park amenities and an existing flood control district basin to the south of the Project Site. The San Bernardino Freeway (I-10) is located approximately 0.7 miles south of the Project Site and runs in an east-west direction.

B. Project Description

The Proposed Project would consist of a Topgolf facility which features climate-controlled hitting bays where players hit golf balls with embedded microchips into an outdoor outfield enclosed by perimeter netting. The Topgolf facility would feature a five-patent technology platform gaming system in which players hit golf balls embedded with a radio frequency identification microchip in a 240-yard outfield that features eleven targets at various distances. Microchips in the balls track each player's shot in real time, giving points for accuracy. The Proposed Project would consist of an approximately 67,521 square-foot

three-story main building, outdoor patio, and an approximately 5-acre outdoor driving range outfield. The facility would be located so that the tee line is facing east, away from the afternoon sun. The proposed 67,521 square-foot building features 102 hitting bays, including bays designated for golf instruction and team practice. The hitting bays include golf clubs, comfortable seating, and television screens to monitor sporting events and tract Topgolf scoring. Figure 2, on page 4, illustrates the site plan for the Proposed Project.

The Proposed Project would also offer a beverage station/service bar and lounge with a full-service bar and restaurant. The Proposed Project would also provide an outdoor patio and rooftop terrace, furnished with tables, couches, and fire pits, with food service available. The spaces would be used for banquets, corporate events, and other event meetings, and can accommodate live music for events. Additionally, the Proposed Project features an approximately half acre miniature golf course adjacent to the outfield and main building. The miniature golf course would include approximately 9-18 holes and a 500 square foot building for golf clubs and ball storage and a point-of-sale terminal. An approximate breakdown of square footages for the key various use types within the building is provided in Table 1, below. A total of 524 surface parking spaces would be provided for the Proposed Project on the western portion of the Project Site.

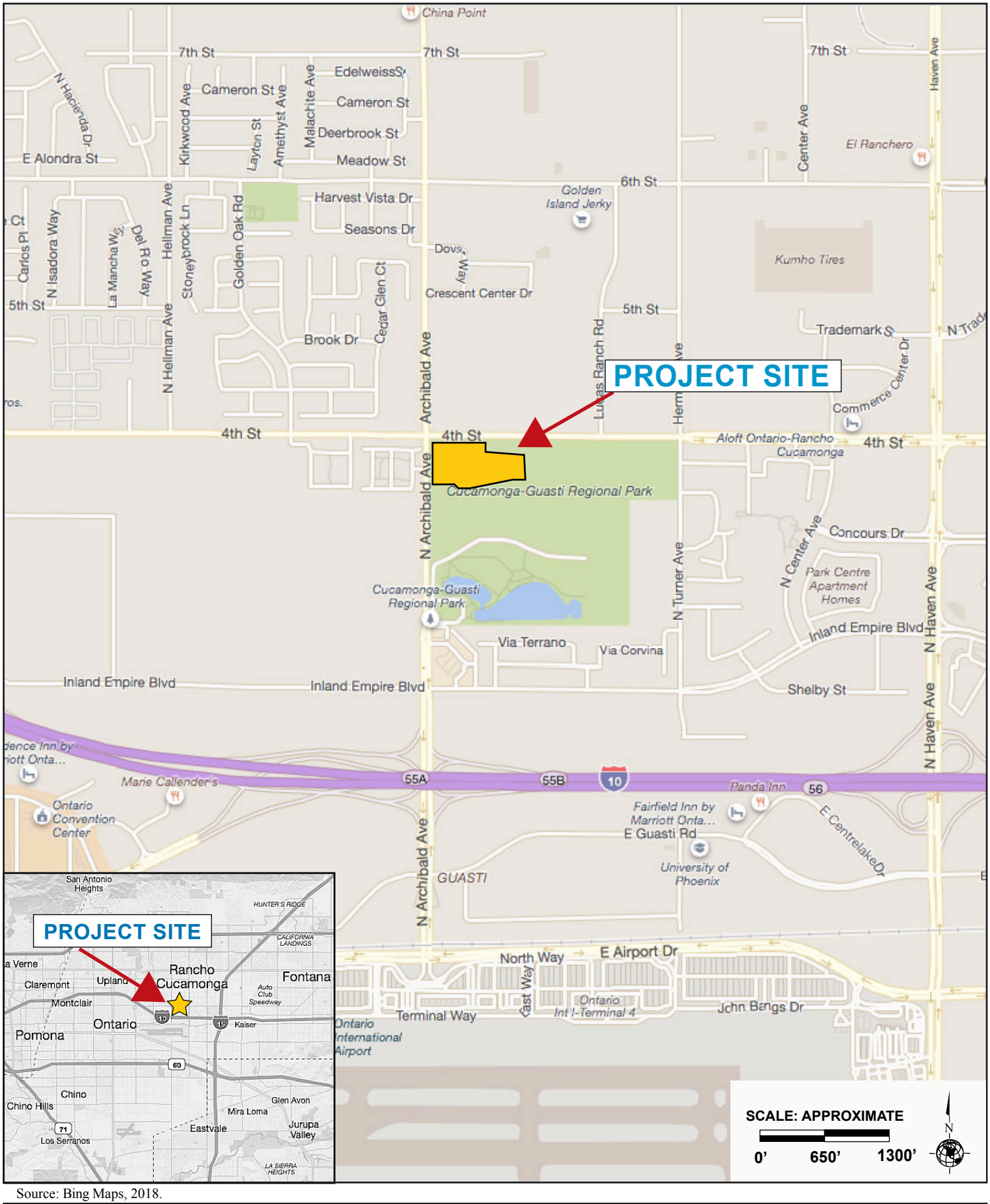
Table 1
Proposed Development Program

Floor Level	Area (square feet)
Ground Level	22,079
Middle Level	23,082
Upper Level	22,360
TOTAL:	**67,521 sf**

Source: Sheppard Mullin Richter & Hampton LLP, March 2019.

C. Project Requirements

The Proposed Project would be required to comply with regulations imposed by the City of Ontario Policy Plan General Plan Safety Element (Chapter S4 Noise Hazards), and the OMC. The Proposed Project would incorporate project design features that would further reduce any noise and vibration levels during construction. Additionally, mitigation measures intended to reduce operational noise impacts are proposed, where appropriate, to avoid or reduce significant impacts of the Proposed Project, which are further detailed below.



Source: Bing Maps, 2018.

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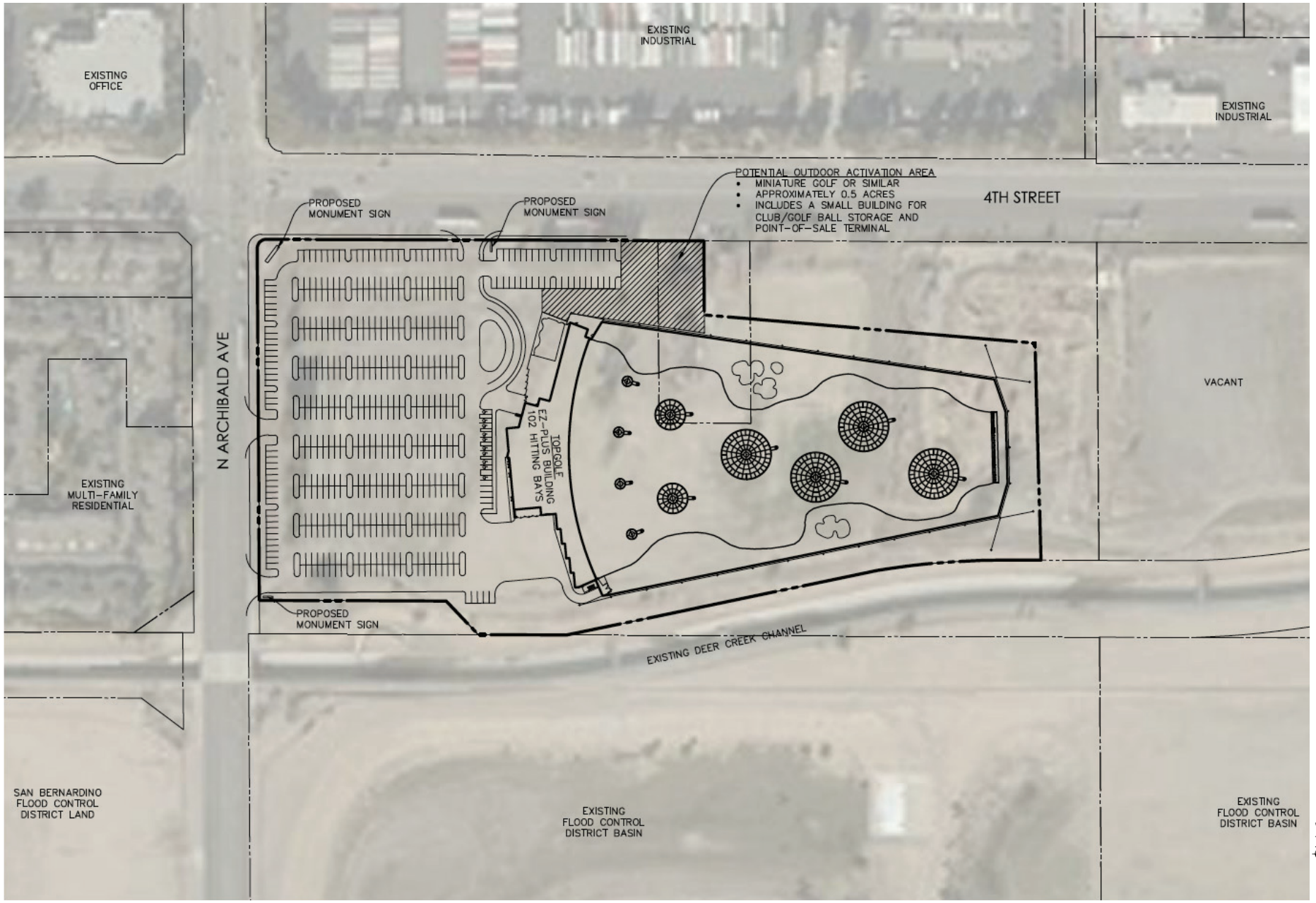
Figure 1
Project Location Map



Source: ARCO/Murray Design Build, June 20, 2018.

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Figure 2
Proposed Plot Plan

2. ENVIRONMENTAL SETTING

A. Fundamentals of Sound and Environmental Noise

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Since the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale ("dBA") provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise is typically defined as unwanted sound. A typical noise environment consists of a base of steady ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. To provide a reference for noise levels expressed in dBA, Table 2, Representative Environmental Noise Levels, illustrates representative noise levels that occur in the environment.

Table 2
Representative Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 100 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

Source: California Department of Transportation, 1998.

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise upon people is largely dependent upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs. Those that are applicable to this analysis are as follows:

- L_{eq} – An L_{eq}, or equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

- L_{min} – The minimum instantaneous noise level experienced during a given period of time.

- L_{max} – The maximum instantaneous noise level experienced during a given period of time.

- CNEL – The Community Noise Equivalent Level is a 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 PM to 10:00 PM and a 10 dBA "weighting" added to noise during the hours of 10:00 PM to 7:00 AM to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24 hour L_{eq} would result in a measurement of 66.7 dBA CNEL.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day, night, or over a 24-hour period. Community noise levels below 60 dBA CNEL are generally considered low, moderate levels are considered to be in the 60 to 70 dBA CNEL range, and high levels above 70 dBA CNEL. Examples of noise levels in urban residential or semi-commercial areas are typically 55 to 60 dBA CNEL, whereas commercial locations are typically 60 dBA CNEL. People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA CNEL) or dense urban or industrial areas (65 to 80 dBA CNEL).

It is widely accepted that in the community noise environment, the average healthy ear can barely perceive CNEL noise level changes of 3 dBA. CNEL changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA CNEL increase is readily noticeable, while the human ear perceives a 10 dBA CNEL increase as a doubling of sound.

B. Fundamentals of Environmental Groundborne Vibration

Vibration is sound radiated through the ground. Vibration can result from a source (e.g., train operations, motor vehicles, machinery equipment, etc.) causing the adjacent ground to move and creating vibration waves that propagate through the soil to the foundations of nearby buildings. This effect is referred to as groundborne vibration. The peak particle velocity (PPV) or the root mean square (RMS) velocity is usually used to describe vibration levels. PPV is defined as the maximum instantaneous peak of the vibration level, while RMS is defined as the square root of the average of the squared amplitude of the

level. PPV is typically used for evaluating potential building damage, while RMS velocity in decibels (VdB) is typically more suitable for evaluating human response.

The general human response to different levels of groundborne vibration velocity levels is described in Table 3, Human Response to Different Levels of Groundborne Vibration, below. The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as the operation of mechanical equipment, movement of people, or slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. For purposes of human perception the range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings, such as historic buildings.

Table 3
Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Perception
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.	

C. Regulatory Framework

1. Federal Standards

1. Noise

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Proposed Project. However, Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise.

2. Vibration

The Federal Transit Administration (FTA) has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities and from federal roadway projects. The vibration damage criteria adopted by the FTA are shown in Table 4, Federal Transit Administration's Construction Vibration Building Damage Criteria.

Table 4
Federal Transit Administration's Construction Vibration Building Damage Criteria

Building Category	Peak Particle Velocity (PPV) (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.50
II. Engineered concrete and masonry (no plaster)	0.30
III. Non-engineered timber and masonry buildings	0.20
IV. Buildings extremely susceptible to vibration damage	0.12
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.	

In addition to the FTA Construction Vibration Impact Criteria for Building Damage, the FTA guidance manual also provides vibration criteria for human annoyance for various uses. These criteria were established primarily for rapid transit (rail) projects and, are based on the frequency of vibration events. The FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories: (1) Vibration Category 1 – High Sensitivity; (2) Vibration Category 2 – Residential; and (3) Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, 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 with primarily daytime use such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

Under conditions where there are an infrequent number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 80 VdB for Category 2 buildings, and 83 VdB for Category 3 buildings.[1] Under conditions where there are an occasional number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 75 VdB for Category 2 buildings, and 78 VdB for Category 3 buildings.[2] Under conditions where there are a frequent number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 72 VdB for Category 2 buildings, and 75 VdB for Category 3 buildings.[3] No thresholds have been adopted or recommended for commercial or office uses.

[1] *"Infrequent events" are defined by the FTA as being fewer than 30 vibration events of the same kind per day.*

[2] *"Occasional events" are defined by the FTA as between 30 and 70 vibration events of the same source per day.*

[3] *"Frequent events" are defined by the FTA as more than 70 vibration events of the same source per day.*

2. State Standards

a. Noise

The California Department of Health Services has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility are shown in Table 5, Community Noise Exposure. In addition, Section 65302(f) of the California Government Code requires each county and city in the state to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) 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.

Table 5
Community Noise Exposure Level (CNEL) Land Use Compatibility Guidelines

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50 - 60	55 - 70	70 - 75	above 70
Multi-Family Homes	50 - 65	60 - 70	70 - 75	above 70
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	above 80
Transient Lodging – Motels, Hotels	50 - 65	60 - 70	70 - 80	above 80
Auditoriums, Concert Halls, Amphitheaters	---	50 - 70	---	above 65
Sports Arena, Outdoor Spectator Sports	---	50 - 75	---	above 70
Playgrounds, Neighborhood Parks	50 - 70	---	67 - 75	above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business and Professional Commercial	50 - 70	67 - 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	above 75	---

[a] *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.*
[b] *Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.*
[c] *Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*
[d] *Clearly Unacceptable: New construction or development should generally not be undertaken.*
Source: Office of Planning and Research, State of California General Plan Guidelines, October 2003 (in coordination with the California Department of Health Services (DHS)).

b. Vibration

There are no state vibration standards that apply to the Proposed Project. Moreover, according to the Caltrans *Transportation and Construction Vibration Guidance Manual* (2013), there are no official Caltrans standards for vibration. Based on Caltrans criteria, construction impacts relative to structural damage from groundborne vibration would be considered significant if the following criteria were to occur as shown in Table 6. This manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08 to 0.12 inches per second for extremely fragile historic buildings, ruins, and ancient monuments, to 0.50 to 2.0 inches per second for modern industrial and commercial buildings.

Table 6
Caltrans' Guidelines for Vibration Building Damage Potential Threshold Criteria

Structures and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual, Chapter 7: Vibration Prediction and Screening Assessment for Construction Equipment, Table 19. September 2013.

3. Local Standards

a. City of Ontario Policy Plan

i. Safety Element

California Government Code Section 65302(g) requires that a noise element be included in the General Plan of each county and city in the State. The City of Ontario's Policy Plan serves as the City's General Plan, which is mandated by state law. Chapter S4 of the Policy Plan's Safety Element addresses noise hazards. Physical health, psychological well-being, social cohesion, property values and economic productivity can all be affected by excessive amounts of noise. The goals and policies pertaining to noise from the Policy Plan's Safety Element that are applicable to the Proposed Project include:

Goal S4 An environment where noise does not adversely affect the public's health, safety, and welfare.

Policy S4-1 *Noise Mitigation*. We utilize the City's Noise Ordinance, building codes and subdivision and development codes to mitigate noise impacts.

ii. Land Use Element

Similar to the State's Land Use Compatibility Guidelines, the City of Ontario has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The guidelines for land use and noise exposure compatibility are shown in Table 7, City of Ontario Noise Level Exposure and Land Use Compatibility Guidelines, below.

Table 7
City of Ontario Noise Level Exposure and Land Use Compatibility Guidelines

NOISE LEVEL EXPOSURE AND LAND USE COMPATIBILITY GUIDELINES Table LU-7

LAND USE CATEGORIES		COMMUNITY NOISE EQUIVALENT LEVEL (CNEL)						
Category	Land Use	55	60	65	70	75	80	
Residential/ Lodging	Single Family / Duplex							
	Multi-Family							
	Mobile Homes							
	Hotel/Motels							
Public/Institutional	Schools/Hospitals							
	Churches/ Libraries							
	Auditoriums/Concert Halls							
Commercial	Offices							
	Retail							
Industrial	Manufacturing							
	Warehousing							
Recreational/ Open Space	Parks/Playgrounds							
	Golf Courses/ Riding Stables							
	Outdoor Spectator Sports							
	Outdoor Music Shells/ Amphitheaters							
	Livestock/Wildlife Preserves							
	Crop Agriculture							

LEGEND

Clearly Acceptable:	No special noise insulation required, assuming buildings of normal conventional construction.
Normally Acceptable:	Acoustical reports will be required for major new residential construction. Conventional construction with closed windows and fresh air supply systems of air conditioning will normally suffice.
Normally Unacceptable:	New construction should be discouraged. Noise/aviation easements required for all new construction. If new construction does proceed, a detailed analysis of noise reduction requirements must be made and necessary noise insulation features included.
Clearly Unacceptable:	No new construction should be permitted.

Note: For noise compatibility criteria and contours for Ontario International Airport refer to the adopted ALUCP for ONT.

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b. City of Ontario Municipal Code ("OMC")

i. Noise Standards

The OMC (Title 5, Public Welfare, Morals and Conduct; Chapter 29: Noise) establishes interior and exterior noise standards based on the type of land use. The noise regulations that are applicable to the Proposed Project are summarized below.

§ 5-29.04 Exterior Noise Standards.

(a) The following exterior noise standards (Table 8, Exterior Noise Standards, below), unless specifically indicated, shall apply to all properties within a designated noise zone.

Table 8
City of Ontario Exterior Noise Standards

Allowable Exterior Noise Level [a]		Allowed Equivalent Noise Level (Leq) [b]	
Noise Zone	**Type of Land Use**	**7 A.M. to 10 P.M.**	**10 P.M. to 7 A.M.**
I	Single-Family Residential	65 dBA	45 dBA
II	Multi-Family Residential, Mobile Home Parks	65 dBA	50 dBA
III	Commercial Property	65 dBA	60 dBA
IV	Residential Portion of Mixed Use	70 dBA	70 dBA
V	Manufacturing and Industrial, Other Uses	70 dBA	70 dBA

Notes:
[a] *If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.*
[b] *Measurements for compliance are made on the affected property pursuant to OMC Section 5-29-15.*
Source: City of Ontario Municipal Code, Section 5-29.04(a).

(b) It is unlawful for any person at any location within the incorporated area of the City to create noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which noise causes the noise level, when measured at any location on any other property, to exceed either of the following:

(i) The noise standard for the applicable zone for any fifteen-minute (15) period; and

(ii) A maximum instantaneous (single instance) noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response).

(c) In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.

§ 5-29.06 Exemptions.

The following activities shall be exempted from the provisions above:

(d) Noise sources associated with construction, repair, demolition or grading of any real property. Such activities shall instead be subject to the provisions of § 5-29.09.

§ 5-29.09 Construction Activity Noise Regulations

(a) No person, while engaged in construction, remodeling, digging, grading, demolition or any other related building activity, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, on any weekday except between the hours of 7:00 A.M. and 6:00 P.M. or on Saturday or Sunday between the hours of 9:00 A.M. and 6:00 P.M.

§ 5-29.13 Amplified Sound

(b) …Notwithstanding any other provision of this chapter, the provisions of this section shall also apply to the use of sound amplifying equipment upon public or private property when used in connection with outdoor or indoor public or private events, whether or not admission is charged or food or beverages are sold, when such activity is to be attended by more than one hundred (100) persons and the noise emanating from the event will be audible at the property plane, or in the case of a street dance or concert on the nearest residential property.

(h) In addition to any other provisions of this Code, the use of sound-amplifying equipment and sound trucks in the City shall be subject to the following regulations:

(1) The only sounds permitted are music and human speech;

(2) Sound shall not be emitted within one hundred (100) yards of hospitals, churches, schools and City Hall;

(3) The volume of sound shall be controlled so that it will not be audible for a distance in excess of one hundred (100) feet from the sound amplifying equipment or sound truck, and so that the volume is not unreasonably loud, raucous, jarring, disturbing or a nuisance to persons within the range of allowed audibility; or

(4) The sound amplifying equipment or sound truck shall not be used between the hours of 8:00 P.M. and 8:00 A.M.

§ 5-29.14 Motor Vehicles

The use of any motor vehicle in such a condition as to create excessive, impulsive or intrusive noises is prohibited. The discharge into the open air of the exhaust of any internal combustion engine, stationary or mounted on wheels, motorboat or motor vehicle, including motor cycle, whether or not discharged through a muffler or other similar device, which discharge creates excessive, unusual, impulsive or intrusive noise is prohibited. Motor vehicles shall comply with the noise regulations of the California Vehicle Code.

c. County of San Bernardino Development Code

i. Vibration Standards

The City of Ontario does not have a significance threshold to assess vibration impacts during construction and operation. Therefore, this analysis uses the County of San Bernardino Development Code Standards for groundborne vibration impacts. The County of San Bernardino Development Code (Title 8, Development Code; Division 3, Countywide Development Standards; Chapter 83.01, General Performance Standards, Section 83.01.090, Vibration) establishes ground vibration standards, which are summarized below.

§ 83.01.090 (a) Vibration Standard.

No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths inches per second (0.2 in/sec) measured at or beyond the lot line.

§ 83.01.090 (c) Exempt Vibrations.

The following sources of vibration shall be exempt from the regulations of this Section: (1) Motor vehicles not under the control of the subject use; and (2) Temporary construction, maintenance, repair, or demolition activities between 7:00 A.M. and 7:00 P.M., except Sundays and Federal holidays.

D. Noise Measurements

Noise measurements were conducted on the Project Site on December 4, 2018, between 11:00 A.M. to 1:00 P.M. To assess the existing ambient noise conditions in the area, ambient noise measurements were taken with a Larson Davis 831 sound level meter, which conforms to industry standards set forth in ANSI S1.4-1983 (R2001) - American National Standard Specification for Sound Level Meters. The instruments were calibrated and operated according to the manufacturer's written specifications. At the measurement locations, the microphones were placed on tri-pod mounts at a height of approximately five feet above the local grade.

At the noise measurement locations identified in Figure 3, Noise Measurement and Sensitive Receptor Location Map, the sound level meter was programmed to record the average sound level (L_{eq}) over a period of 15 minutes. Noise levels were monitored at four locations:

(A) On the west side of N. Archibald Avenue, to the west of the Project Site;

(B) On the north side of 4th Street, west of N. Archibald Avenue;

(C) On the north side of 4th Street, northeast of the Project Site; and

(D) South of the Project Site, within the Cucamonga-Guasti Regional Park.

The average noise levels and sources of noise monitored at each location are shown in Table 9, On- and Off-Site Noise Measurements.

Table 9
On- and Off-Site Noise Measurements

Noise Measurement	Primary Noise Sources	Date / Start Time [a]	Noise Level Statistics (dBA)		
			L_{eq}	L_{min}	L_{max}
(A) On the west side of N. Archibald Avenue, west of the Project Site	Heavy vehicle traffic, semi-trailer trucks	12/04/2018 11:33 AM	75.2	58.5	86.4
(B) On the north side of 4th Street, west of N. Archibald Avenue	Heavy vehicle traffic, delivery trucks, semi-trailer trucks	12/04/2018 11:13 AM	68.5	51.2	84.5
(C) On the north side of 4th Street, northeast of the Project Site	Heavy vehicle traffic, delivery trucks, semi-trailer trucks	12/04/2018 12:03 PM	70.5	52.4	82.3
(D) South of the Project Site, within the Cucamonga-Guasti Regional Park	Minimal park activities	12/04/2018 12:39 PM	51.2	46.3	59.9

Notes:
[a] *The measurement time refer to the start time of a 15-minute noise event.*
Source: Parker Environmental Consultants, 2018. Noise measurement data are provided in Appendix A.

Location A

Location A is located to the west of the Project Site, along the west side of N. Archibald Avenue. The measurement was taken close to the multi-family residential neighborhood to the west of the Project Site. The predominant noise sources at Location A were observed to be heavy vehicular traffic along N. Archibald Avenue. During the measurement, the peak sounds were attributable to the vehicles passing by the noise monitor along N. Archibald Avenue due to the short distance between vehicles and the noise-measuring instrument. As noted in Table 9, the ambient sound at Location A was 75.2 dBA (L_{eq}).

Location B

Location B is on the north side of 4th Street, west of N. Archibald Avenue. The measurement was taken close to the single-family residential neighborhood to the northwest of the Project Site. The predominant noise sources at Location B were observed to be associated with heavy vehicular traffic along 4th Street, including delivery trucks and semi-trailer trucks. As noted in Table 9, the ambient noise level at Location B was 68.5 dBA (L_{eq}).

Source: Google Earth, Aerial View, 2018.

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Figure 3
Noise Monitoring and Sensitive Receptor Location Map

Location C

Location C is located on the north side of 4th Street, northeast of the Project Site. The measurement was taken close to the commercial and industrial properties to the north and northeast of the Project Site. The predominant noise sources at Location C were observed to be associated with heavy vehicular traffic along 4th Street, including delivery trucks and semi-trailer trucks. As noted in Table 9, the ambient noise level at Location C was 70.5 dBA (L_{eq}).

Location D

Location D is located approximately 400 feet south of the Project Site, within the Cucamonga-Guasti Regional Park. The predominant noise sources at Location D were observed to be associated with minimal park activity, such as people fishing in the park. As noted in Table 9, the ambient noise level at Location D was 51.2 dBA (L_{eq}).

E. Sensitive Receptors

Refer to Figure 3, Noise Monitoring and Sensitive Receptor Location Map, on page 15, for locations of sensitive receptors within 500 feet of the Project Site. For purposes of assessing noise impacts on sensitive populations, the following sensitive receptors in proximity to the Project Site were identified and listed in Table 10, below.

Table 10
Sensitive Noise Receptors Surrounding the Property

Receptor	Land Use	Location
1	Multi-family Residential Buildings	West of the Project Site, across N. Archibald Avenue
2	Single-family Residential Neighborhood	Northwest of the Project Site, fronting 4th Street

See Figure 3, Noise Measurement and Sensitive Receptor Location Map.
Source: Parker Environmental Consultants 2018.

3. ENVIRONMENTAL IMPACTS

A. Thresholds of Significance

1. State CEQA Guidelines Appendix G [4]

The State CEQA Guidelines Appendix G provides the following Initial Study Checklist Questions to assist lead agencies in addressing environmental noise impacts pursuant to CEQA. For purposes of this analysis, a significant noise impact would result if the Proposed Project would the project result in:

[4] *As amended on January 1, 2019.*

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) Generation of excessive groundborne vibration or groundborne noise levels;

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 airstrip, expose people residing or working in the project area to excessive noise levels.

2. City of Ontario Municipal Code ("OMC")

a. Construction

According to the OMC, noise sources from temporary construction activities, between 7:00 A.M. and 6:00 P.M. during any weekday and between 9:00 A.M. and 6:00 P.M. on Saturday or Sunday, shall be exempt from the noise regulations in the OMC (Section 5-29.04). Therefore, pursuant to the OMC, the Proposed Project's construction shall be limited to the hours between 7:00 A.M. and 6:00 P.M during any weekday and between 9:00 A.M. and 6:00 P.M. on Saturday or Sunday.

b. Operation

Based on the OMC (Section 5-29.04), the Proposed Project's stationary noise levels would normally have a significant operational noise impact if it would exceed the allowable exterior noise level standards for any 15-minute period for the City of Ontario as identified in Table 8, City of Ontario Exterior Noise Standards, above, or exceed the exterior noise level standards by 20 dBA for any period of time.

3. County of San Bernardino Development Code

With respect to vibration impacts, the Proposed Project's groundborne vibration impacts would have a significant impact if the Proposed Project's operational vibration levels exceed the 0.2 in/sec PPV threshold at the sensitive receptor locations, as regulated by the County of San Bernardino Development Code.

B. Methodology

Construction noise levels were estimated by data published in the Transit Noise and Vibration Impact Assessment published for the FTA by Harris Miller Miller & Hanson Inc. (2006). Potential noise levels are identified for off-site locations that are sensitive to noise factoring in distance attenuation and attenuation resulting from barriers that block the line of sight between the noise source and the noise receptor.

Stationary point-source noise impacts were evaluated by identifying the noise levels generated by outdoor stationary noise sources, such as building mechanical equipment and the activities anticipated to occur within the hitting bay areas, miniature golf, and outdoor terraces and calculating the hourly Leq noise level from each noise source at sensitive receptor property lines.

The Proposed Project's operational noise impacts from mobile sources were analyzed using the Caltrans, Technical Noise Supplement (TeNS, 2009) and based on the increase of vehicle trips estimated for the Proposed Project, prepared by Gibson Transportation Consulting, Inc., and the existing traffic volumes on surrounding roadways to determine if the Proposed Project's vehicular traffic would result in a doubling of traffic volumes. Under Caltrans' screening methodology, it would take a doubling of traffic volumes to generate a 3-dBA increase in ambient noise levels.

C. Project Impacts

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

A significant impact may occur if the Proposed Project would generate excess noise that would cause the ambient noise environment at the Project Site to exceed noise level standards set forth in the OMC. Implementation of the Proposed Project would result in an increase in ambient noise levels during both construction and operation, as discussed in further detail below.

1. Construction Noise

According to the OMC, noise sources from temporary construction activities between 7:00 A.M. and 6:00 P.M. during any weekday and between 9:00 A.M. and 6:00 P.M. on Saturday or Sunday, shall be exempt from the noise regulations in the OMC. The Proposed Project's construction activities shall be limited to the hours between 7:00 A.M. and 6:00 P.M during any weekday and between 9:00 A.M. and 6:00 P.M. on Saturday or Sunday, and are anticipated to occur for a total duration of approximately 10 months. The applicant is not seeking to deviate from the permissible hours of construction. As such, the Proposed Project's construction activities would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance. Nevertheless, the following discussion regarding construction noise impacts is provided for informational purposes.

Construction of the Proposed Project would require the use of construction equipment for grading/earthwork, building construction, paving, and the installation of utilities. During each construction phase, there would be a different mix of equipment operating and noise levels would vary based on the amount of equipment in operation and the location of each activity. The U.S. Environmental Protection Agency (EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities. The anticipated noise levels from construction activities that are likely to occur during Project construction are presented in Table 11, Typical Outdoor Construction Noise Levels.

Table 11
Typical Outdoor Construction Noise Levels

Construction Phase	Noise Levels at 50 Feet with Mufflers (dBA L_{eq})	Noise Levels at 60 Feet with Mufflers (dBA L_{eq})	Noise Levels at 100 Feet with Mufflers (dBA L_{eq})	Noise Levels at 200 Feet with Mufflers (dBA L_{eq})
Ground Clearing	82	80	76	70
Excavation, Grading	86	84	80	74
Foundations	77	75	71	65
Structural	83	81	77	71
Finishing	86	84	80	74

Source: United States Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, PB 206717, 1971.

The noise levels shown in the above table represent composite 1-hour (L_{eq}) noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. The construction noise during the heavier initial periods of construction could be expected to be as high as 86 dBA L_{eq} within 50 feet from the Project Site. The Project's construction noise levels would diminish with distance at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA L_{eq} measured at 50 feet from the noise source to the receptor would reduce to 80 dBA L_{eq} at 100 feet from the source to the receptor, and reduce by another 6 dBA L_{eq} to 74 dBA L_{eq} at 200 feet from the source to the receptor.

Construction noise impacts were estimated for nearby sensitive receptors, which occur at varying distances from the Project Site. Noise sensitive land uses within 500 feet of the Project Site include the multi-family residences to the west of the Project Site and the single-family neighborhood to the northwest of the Project Site.

Table 12, below, provides the estimated construction noise levels at the nearby sensitive receptors based on distance attenuation and sound attenuation resulting from existing cinder block walls located on the respective property lines of the residential land uses in the project vicinity. These solid barriers would provide noise attenuation of 5 dBA or more for the receptors surrounding the Project Site. As shown in the Table 12, Estimated Exterior Construction Noise at Nearest Sensitive Receptors, exterior construction noise levels at each of the sensitive receptors would reach a maximum of 75.0 dBA. Combined with the ambient noise levels recorded at each sensitive receptor location, the resulting noise impact level would be 2.9 dBA above the ambient noise level at Receptor No. 1 and 1.0 dBA above the ambient noise level at Receptor No. 2. As stated previously under Section 2A, Fundamentals of Sound and Environmental Noise, a noise level increase of 3.0 dBA is barely perceptible to the human ear under normal environmental conditions. Thus, a noise increase of 2.9 dBA would be considered a less than significant impact. Furthermore, based on the provisions set forth in the OMC, impacts associated with construction-related noise levels would not be considered a significant impact, so long as the construction activities occur between the permissible hour of construction (i.e., 7:00 A.M. and 6:00 P.M during any weekday and between 9:00 A.M. and 6:00 P.M. on Saturday or Sunday). As such, temporary construction-related noise impacts would be considered less than significant and in accordance with the OMC.

Table 12
Estimated Exterior Construction Noise at Nearest Sensitive Receptors

Receptor	Sensitive Land Use	Distance to Project Site (feet)	Existing Monitored Daytime Ambient Noise Levels (dBA L_{eq})	Reference Construction Noise Levels (dBA L_{eq}) [a]	Construction Noise Levels (dBA L_{eq}) [b]	Construction Noise Impact (dBA L_{eq}) [c]
1	Multi-family residential located west of the Project Site	100	75.2	75.0	78.1	2.9
2	Single-family residential located northwest of the Project Site	425	68.5	62.4	69.5	1.0

See Figure 3, Noise Monitoring and Sensitive Receptor Location Map.
[a] *Attenuation for Receptors No. 1 and 2 factor a 5-dBA reduction due to the cinder block walls at each receptor that block the line of sight between the construction activity and the source.*
[b] *Existing ambient noise levels plus reference construction noise levels.*
[c] *Resulting noise level above existing monitored daytime ambient noise levels.*
Source: Calculations based on Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Final Report, May 2006. It should be noted that the peak noise level increase at the nearby sensitive receptors during project construction represents the highest composite noise level that would be generated periodically during a worst-case construction activity and does not represent continuous noise levels occurring throughout the construction day or period.

2. Operational Noise

a. Outdoor Activity Noise Levels

The hours of operation for the Proposed Project would be between 9:00 A.M. to 2:00 A.M., daily. The Proposed Project includes a turf-covered standing area on the ground level, and outdoor patios that would be located on each level along the western side of the main building, fronting the parking lot. The estimated maximum occupancy for the outdoor areas is approximately 499 people, including 119 people in the seating areas with tables and chairs and 380 people in the standing area at the putting turf and miniature golf course. The outdoor patio area would also include the use of amplified speakers for background music and live entertainment.

Based on the outdoor occupancy information provided above, it is anticipated that that the outdoor areas could accommodate up to 499 people. For purposes of estimating noise from people congregating in the outdoor patio and seating areas, reference noise levels of 65 dBA and 62 dBA (L_{eq} at a distance of 3.3 feet) for a male and a female speaking in a raised voice, respectively, were used to analyze noise from the use of the outdoor areas. Assuming up to 50 percent of the people (half of which would be male and the other half female) would be talking at the same time, the noise levels from conversational noise on the outdoor patios would be approximately 87.72 dBA L_{eq} within the outdoor areas on-site.

The outdoor patio area would also include the use of amplified speakers for background music and live entertainment. It is anticipated that the Proposed Project would be operated in compliance with the OMC. Pursuant to OMC Section 5-29.13(h), Amplified Sound, the volume of amplified sound shall be controlled so that it will not be audible for a distance in excess of one hundred (100) feet from the sound

amplifying equipment or sound truck, and so that the volume is not unreasonably loud, raucous, jarring, disturbing or a nuisance to persons within the range of allowed audibility; and the sound amplifying equipment or sound truck shall not be used between the hours of 8:00 P.M. and 8:00 A.M. Therefore, the Proposed Project would adhere to the noise control standards and permissible hours of operation for the use of amplified equipment within the outdoor patio.

Amplified speakers in a bar and dance club setting typically generates noise levels ranging from 84 dBA to 104 dBA depending on many factors including the volume setting of the equipment, the orientation of the speakers, physical separation distance from the speakers to receptors, and whether barriers shield or partially shield the speaker noise.[5] For purposes of estimating noise from outdoor noise levels with the amplified sound system in use, it is assumed that the audio system would be set to provide background music that would be audible on the premises but would not interfere with normal conversational speech. Thus, this analysis assumes the audio system would be set between 5-10 dBA above the ambient noise from people congregating on the outdoor patios. As noted above, the noise levels attributable to people conversing within the outdoor areas is 87.72 dBA L_{eq}. Accordingly, the combined noise level of people conversing with the audio system would be 92.72 - 97.72 dBA $L_{eq.}$

Exterior noise levels at both sensitive receptor locations were calculated based on the reference noise levels described above (crowd noise with and without amplified music), the respective distances between the outdoor patio area and the affected sensitive receptors, and sound attenuation features such as intervening structures or barriers that block the line of sight between the sound source and the receptor. The outdoor patio area is approximately 610 feet away from the nearest multi-family residential land use (Sensitive Receptor No. 1) and 980 feet away from the nearest single-family residential land use (Sensitive Receptor No. 2). In addition to factoring in the noise attenuation due to distance, an approximate 5 dBA attenuation rate was applied to account for the solid cinderblock walls that surround the sensitive receptors and block the line-of-site to the Project Site. An additional 5 dBA attenuation rate was applied to account for the proposed outdoor landscaping and plexiglass barriers surrounding the outdoor spaces and exterior dining areas. As shown in Table 13, below, the noise levels at sensitive receptor Nos 1 and 2 would be 66.0 dBA L_{eq} and 61.9 dBA L_{eq}, respectively, which is 9.2 dBA L_{eq} below the ambient noise levels at Sensitive Receptor No. 1 and 6.6 dBA L_{eq} below the ambient noise levels at Sensitive Receptor No. 2. It should be noted that these estimated noise levels are a worst-case scenario and assume that the outdoor patios would be filled to capacity. As such, operational noise levels from the outdoor patios and seating areas would be less than significant.

[5] *Sound Advice, Note 11, Pubs and Clubs, Amplified music played in nightclubs, bars, pubs and restaurants, 2007, http://www.soundadvice.info/thewholestory/san11.htm. accessed August 10, 2017. Sound Advice has been produced by a working group of industry stakeholders with support from the Health and Safety Executive (United Kingdom). It provides practical guidance on the control of noise in music and entertainment.*

Table 13
Estimated Outdoor Noise Levels from Outdoor Uses

Sensitive Receptor No. [a]	Ambient Noise Level at Receptor Location	Noise Level from Outdoor Uses (dBA L_{eq})	Threshold Noise Level (dBA L_{eq}) [b]	Significant Impact?
1	75.2	66.0	**75.2**	**No**
2	68.5	61.9	**68.5**	**No**

Notes
[a] *See Figure 3, Noise Monitoring and Sensitive Receptor Location Map.*
[b] *City of Ontario Municipal Code, Section 5-29.04(a). In cases where the ambient noise level exceeds the resulting land use compatibility noise level exposure standards, the ambient noise level shall be the standard.*

Source: Calculations based on Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Final Report, May 2006 and Caltrans' Technical Noise Supplement, September 2013.

Parker Environmental Consultants, 2019. (See calculation worksheets in Appendix A)

b. Hitting Bays Noise Levels

The hitting bays and driving range outfield would be facing east, oriented away from the multi-family and single-family residential neighborhoods. Thus, the west facing façade and roof structure of the main building would block the line of site between the hitting bays and these sensitive receptors. The noise from the hitting bays would involve people gathering and talking, low ambient audio noise from the in-house entertainment system, and the impact sound of people hitting golf balls. Excessive noise would not spillover to the identified sensitive receptors. Therefore, noise levels from the hitting bays would result in a less-than-significant noise impact.

c. Mechanical Equipment and HVAC Noise

Heating, ventilation, and air conditioning (HVAC) equipment installed on the new structure and the mechanical equipment within the Topgolf technology platform gaming system would contribute to operational noise levels. However, the noise levels generated by this type of equipment is not anticipated to be substantially greater than those generated by the current HVAC equipment serving the surrounding buildings in the Project vicinity. As such, the HVAC equipment associated with the Proposed Project would not represent a new source of noise in the Project Site vicinity. Additionally, no mechanical or maintenance equipment would be located outside to operate the gaming system. Furthermore, the operation of any on-site stationary sources of noise would be required to comply with the noise standards for stationary noise sources, which prohibits noise from exceeding 65 dBA for residential uses between 7:00 A.M. and 10:00 P.M., 45 dBA between 10:00 P.M. to 7:00 A.M for single-family residential uses, or 50 dBA between 10:00 P.M. to 7:00 A.M for multi-family residential uses. Therefore, the mechanical noise levels from the Proposed Project would not exceed the thresholds set by the OMC and would therefore meet the noise ordinance. Noise impacts from the mechanical equipment and HVAC equipment would be less than significant.

d. Traffic Noise

A significant mobile noise source impact would occur if the Proposed Project's trip generation on the surrounding roadways resulted in an increase of 3 dBA CNEL with the addition of the Proposed Project's trips. Under ambient conditions, people generally do not perceive that noise has clearly changed until there is an increase of 3 dB; thus, a threshold of 3 dB is commonly used to define a "substantial increase" with respect to traffic noise. Based on the principles of roadway noise, it would take a doubling of the roadway's traffic to generate a perceptible increase (3 dB) in the ambient roadway noise volume. The Proposed Project would increase traffic volumes on the surrounding roadways, which in turn has the potential to increase roadway noise. With respect to traffic noise impacts, the Proposed Project's mobile source vehicular noise impacts are based on the predicted traffic volumes as provided by Gibson Transportation Consulting, Inc., dated March 2019. For purposes of analyzing the Proposed Project's traffic noise impacts, the roadway noise levels were modeled using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise was modeled under the Existing (2018) "No Project" conditions and "Existing with Project" conditions to determine the environmental baseline and Proposed Project impact, respectively, for the closest four street segments in the Project vicinity. As shown in Table 14, the Proposed Project would increase local noise levels by a maximum of 0.16 dBA CNEL (on Archibald Avenue, between 4th Street and Inland Empire Boulevard) and thus would not exceed the 3-dBA CNEL threshold of significance at any of the study street segments. The remaining street intersections analyzed would all experience a 0.11 dBA CNEL increase or less. As such, increased mobile source noise from the Proposed Project's increase in traffic would be less than 3 dBA and operational noise impacts due to roadway noise thus would be less than significant.

Table 14
Estimated Mobile Noise Levels at Surrounding Roadways

Roadway Segment	Noise Levels in dBA CNEL			
	FHWA-RD-77-108 Modeled Noise Levels			Significant Impact
	Existing (2018) Without Project Traffic Volumes	Existing (2018) w/ Project Traffic Volumes	Increase	
1. 4th Street, between Vineyard Avenue and Archibald Avenue	73.85	73.91	0.06	No
2. 4th Street, between Archibald Avenue and Turner Avenue	74.31	74.42	0.11	No
3. Archibald Avenue, between 6th Street and 4th Street	73.27	73.30	0.03	No
4. Archibald Avenue, between 4th Street and Inland Empire Boulevard	75.39	75.55	0.16	No

Note: A significant impact on noise levels from project operations would occur if the project causes the ambient noise level at the property line of affected uses to increase by 5 dBA for the nearby residential land uses.
Calculation roadway noise levels data and results using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes are provided in Appendix A to this report.
Traffic data: Gibson Transportation Consulting, Inc. March 2019.

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

A significant impact may occur if the Proposed Project would generate excess groundborne vibration that would exceed the vibration standard of 0.2 in/sec, as set forth in the County of San Bernardino Development Code (Section 83.01.090). Implementation of the Proposed Project may result in an increase in groundborne vibration levels during both construction and operation, as discussed in further detail below.

1. Construction Vibration Impacts

According to the County's Development Code, noise and vibration sources from temporary construction activities between 7:00 A.M. and 7:00 P.M., except Sundays and Federal holidays, shall be exempt from the noise regulations in the Development Code. The Proposed Project's construction activities would be limited to the hours between 7:00 A.M. and 7:00 P.M., except Sundays and Federal holidays. As such, the Proposed Project's temporary construction activities would not have a significant vibration impact on the surrounding sensitive receptors. Nevertheless, the following discussion regarding quantified construction vibration levels is provided for informational purposes.

Earthwork activities for the Proposed Project would have the potential to generate low levels of groundborne vibration. The operation of construction equipment generates vibrations that propagate through the ground and diminishes in intensity with distance from the source. Vibration impacts can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage of buildings at the highest levels. Construction impacts relative to structural damage from groundborne vibration would be minimal since no building directly abuts the Project Site and the nearest occupied structure is located over 100 feet from the proposed grading and earthwork areas. Table 15, Vibration Source Levels for Construction Equipment, identifies various peak particle velocity (PPV) and RMS velocity (in VdB) levels for typical types of construction equipment. The nearest sensitive receptors are the multi-family residential buildings located approximately 100 feet to the west of the Project Site. As shown in Table 15, vibration velocities could range from 0.0004 to 0.011 inch/sec PPV at 100 feet from the source activity, with corresponding vibration levels ranging from 40 VdB to 69 VdB at 100 feet from the source activity, depending on the type of construction equipment in use. Thus, the vibration levels for the Proposed Project would be less than the 0.2 in/sec PPV threshold. Therefore, the Proposed Project's potential to generate groundborne vibration impacts during construction would be less than significant.

Table 15
Vibration Source Levels for Construction Equipment

Equipment	Approximate PPV (in/sec)					Approximate RMS (VdB)				
	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet	25 Feet	50 Feet	60 Feet	75 Feet	100 Feet
Large Bulldozer	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Caisson Drilling	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Loaded Trucks	0.076	0.027	0.020	0.015	0.010	86	77	75	72	68
Jackhammer	0.035	0.012	0.009	0.007	0.004	79	70	68	65	61
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004	58	49	47	44	40

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Final Report, 2006.

2. Operational Vibration Impacts

The Proposed Project would include a Topgolf commercial entertainment venue and would not involve the use of stationary equipment that would result in high vibration levels, which are more typical for large commercial and industrial projects. Although groundborne vibration at the Project Site and immediate vicinity may currently result from heavy-duty vehicular travel (e.g., refuse trucks and transit buses) on the nearby local roadways, the proposed land uses at the Project Site would not result in the increased use of these heavy-duty vehicles on the public roadways. While refuse trucks would be used for the removal of solid waste at the Project Site, these trips would typically only occur a few times a week and would not be any different than those presently occurring in the vicinity of the Project Site. As such, vibration impacts associated with operation of the Proposed Project would be less than significant.

Threshold 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 airstrip, would the Project expose people residing or working in the project area to excessive noise levels?

The Proposed Project is located within the LA/Ontario International Airport Land Use Compatibility Plan "airport influence area." An airport influence area includes the areas in which current or future airport-related safety, noise, airspace protection, or overflight factors may significant affect land uses or necessitate restrictions on those uses. The nearest public airport to the Project Site is the Ontario International Airport, which is located approximately 1.5 miles south of the Project Site. However, the Project Site is not listed within the LA/Ontario International Airport Land Use Compatibility Plan as a "Noise Impact Zone." Furthermore, the Proposed Project would involve the construction of a Topgolf entertainment venue and would not propose any noise-sensitive land uses. As such, the Proposed Project would not expose future employees in the project area to excessive noise levels, and a less than significant impact would occur.

D. Mitigation Measures

No mitigation measures are required.

E. Cumulative Impacts

Development of the Proposed Project in conjunction with the related projects identified in the Proposed Project's Traffic Study, would result in an increase in construction-related and traffic-related noise as well as on-site stationary noise sources in the City of Ontario. The Project Applicant has no control over the timing or sequencing of the related projects that have been identified within the Proposed Project study area and it is impossible to predict with any degree of certainty the occurrence of concurrent construction activities. Therefore, any quantitative analysis that assumes multiple, concurrent construction projects would be speculative. Construction-period noise for the Proposed Project and each related project (that has not yet been built) would be localized and mitigated on a project-by-project basis. In addition, each of the related projects would be required to comply with the City's noise standards within the City of Ontario's noise ordinance, as well as mitigation measures that may be prescribed pursuant to CEQA provisions that require potentially significant impacts to be reduced with feasible mitigation. As demonstrated above, Project construction and operational noise impacts would result in less than significant impacts. As such, the Proposed Project's construction and operational noise impacts would not be cumulatively considerable. Additionally, because each related project would be required to comply with the City of Ontario's noise ordinance, cumulative impacts associated with construction noise would be mitigated to less than significant levels.

For purposes of analyzing the Proposed Project's cumulative traffic noise impacts, the roadway noise levels were modeled using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise was modeled under the Existing (2018) base year conditions without the Project and "Future with Project" conditions to determine the cumulative roadway noise impacts, respectively. As shown in Table 16, Cumulative Mobile Noise Levels at Surrounding Roadways, the Proposed Project and related projects' contribution to future cumulative noise levels would result in a maximum increase of 1.37 dBA CNEL (on Archibald Avenue, between 4th Street and Inland Empire Boulevard) and thus would not exceed the 5-dBA CNEL threshold of significance at any of the study street segments. The remaining street intersections analyzed would all experience an increase of 1.07 dBA CNEL increase or less. Thus, the Proposed Project's mobile noise impacts would not exceed the 3-dBA CNEL threshold, and the Proposed Project's cumulative mobile source noise impact would be less than significant.

Table 16
Cumulative Mobile Noise Levels at Surrounding Roadways

Roadway Segment	Noise Levels in dBA CNEL			
	FHWA-RD-77-108 Modeled Noise Levels			Significant Impact
	Existing (2018) Without Project Traffic Volumes	Future (2020) With Project Traffic Volumes	Cumulative Impact	
1. 4th Street, between Vineyard Avenue and Archibald Avenue	73.85	74.57	0.72	No
2. 4th Street, between Archibald Avenue and Turner Avenue	74.31	74.80	0.49	No
3. Archibald Avenue, between 6th Street and 4th Street	73.27	74.34	1.07	No
4. Archibald Avenue, between 4th Street and Inland Empire Boulevard	75.39	76.76	1.37	No

Note: A significant impact on noise levels from project operations would occur if the project causes the ambient noise level to increase by 3 dB or more.
Calculation roadway noise levels data and results using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes are provided in Appendix A to this report.
Traffic data: Gibson Transportation Consulting, Inc. March 2019.

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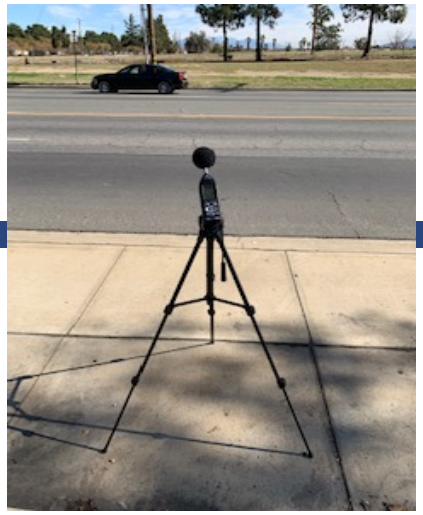
Appendix A

Noise Monitoring Data and Calculations Worksheets

December 4, 2018

Summary

File Name on Meter	831_Data.136
Serial Number	0003748
Model	Model 831
Firmware Version	2.311
User	Adrianna Gjonaj
Job Description	TopGolf Ontario Project
Location A: On the west side of N. Archibald Avenue	
Noise Sources: Heavy vehicle traffic, semi-trailer trucks	



Measurement

Description	
Start	2018-12-04 11:33:27
Stop	2018-12-04 11:48:27
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2018-12-04 11:06:58
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Microphone Correction	Off
Integration Method	Linear
Gain	0.0 dB
Overload	142.8 dB

	A	**C**	**Z**
Under Range Peak	75.2	72.2	**77.2** dB
Under Range Limit	**26.1**	26.3	31.6 dB
Noise Floor	16.9	17.2	22.3 dB

Results

LA_{eq}	75.2 dB		
LAE	104.8 dB		
EA	3.330 mPa^2h		
$LZ_{peak\ (max)}$	2018-12-04 11:46:59	109.0 dB	
LAS_{max}	2018-12-04 11:42:02	86.4 dB	
LAS_{min}	2018-12-04 11:43:13	58.5 dB	
SEA	-99.9 dB		
LAS > 65.0 dB (Exceedance Counts / Duration)	9	854.0 s	
LAS > 85.0 dB (Exceedance Counts / Duration)	2	3.2 s	
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**Lden**	**LDay 07:00-19:00**
	75.2	75.2	75.2	75.2

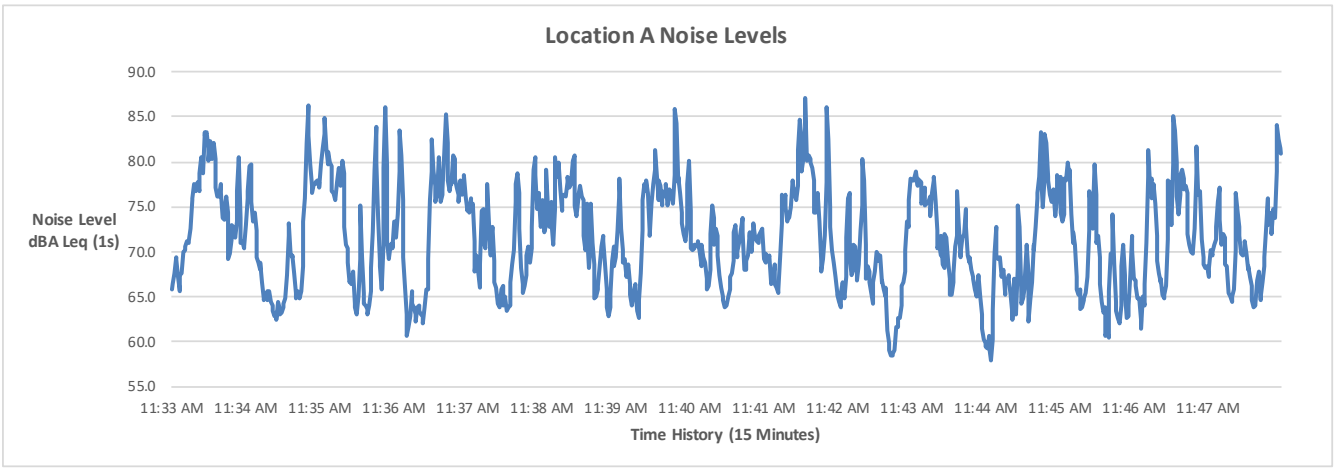
LC_{eq}	84.3 dB
LA_{eq}	75.2 dB
LC_{eq} - LA_{eq}	9.1 dB
LAI_{eq}	76.7 dB
LA_{eq}	75.2 dB
LAI_{eq} - LA_{eq}	1.5 dB

December 4, 2018

	A	
	dB	Time Stamp
L_{eq}	75.2	
$L_{S(max)}$	86.4	2018/12/04 11:42:02
$L_{F(max)}$	90.0	2018/12/04 11:42:01
$L_{I(max)}$	91.2	2018/12/04 11:42:01
$L_{S(min)}$	58.5	2018/12/04 11:43:13
$L_{F(min)}$	57.7	2018/12/04 11:44:32
$L_{I(min)}$	58.2	2018/12/04 11:44:32
$L_{Peak(max)}$	100.0	2018/12/04 11:40:16

# Overloads	0	
Overload Duration	0.0	s

Statistics		
LAS5.00	80.9	dB
LAS10.00	79.0	dB
LAS33.30	75.2	dB
LAS50.00	71.6	dB
LAS66.60	69.0	dB
LAS90.00	64.7	dB



December 4, 2018

PARKER ENVIRONMENTAL CONSULTANTS

Summary

File Name on Meter	831_Data.135
Serial Number	0003748
Model	Model 831
Firmware Version	2.311
User	Adrianna Gjonaj
Job Description	TopGolf-Ontario Project

Location B: On the north side of 4th Street, west of N. Archibald Avenue

Noise Sources: Heavy vehicle traffic, delivey trucks, semi-trailer trucks

Measurement

Description	
Start	2018-12-04 11:13:48
Stop	2018-12-04 11:28:48
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2018-12-04 11:06:58
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Microphone Correction	Off
Integration Method	Linear
Gain	0.0 dB
Overload	142.8 dB

	A	C	Z
Under Range Peak	75.2	72.2	**77.2** dB
Under Range Limit	**26.1**	26.3	31.6 dB
Noise Floor	16.9	17.2	22.3 dB

Results

LAeq	68.5 dB		
LAE	98.1 dB		
EA	711.283 µPa²h		
LZpeak (max)	2018-12-04 11:17:46	103.7 dB	
LASmax	2018-12-04 11:17:46	84.5 dB	
LASmin	2018-12-04 11:28:06	51.2 dB	
SEA	-99.9 dB		
LAS > 65.0 dB (Exceedance Counts / Duration)	31	421.4 s	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**Lden**	**LDay 07:00-19:00**
	68.5	68.5	68.5	68.5

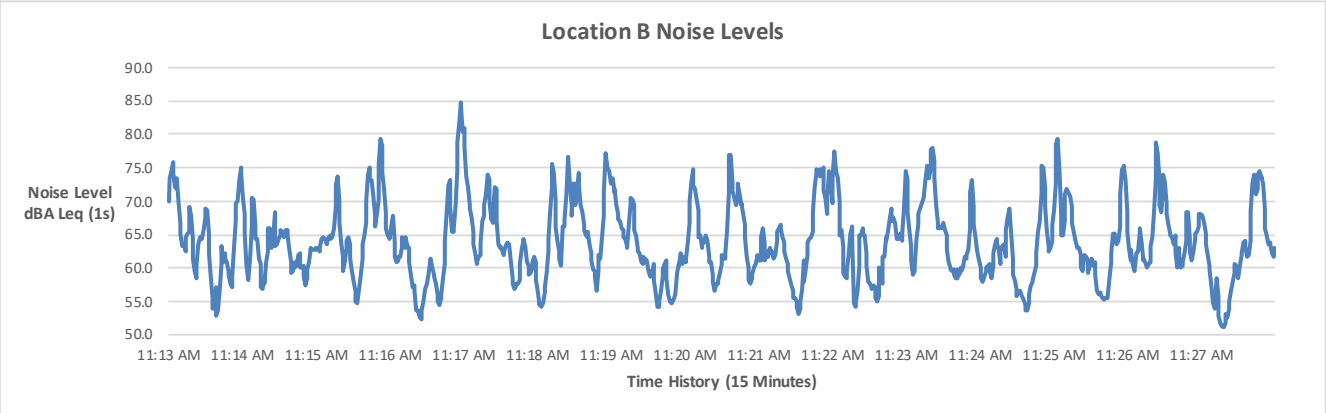
LCeq	74.7 dB	
LAeq	68.5 dB	
LCeq - LAeq	6.2 dB	
LAleq	69.7 dB	
LAeq	68.5 dB	
LAleq - LAeq	1.2 dB	

December 4, 2018

	A	
	dB	Time Stamp
L_{eq}	68.5	
$L_{S(max)}$	84.5	2018/12/04 11:17:46
$L_{F(max)}$	85.9	2018/12/04 11:17:46
$L_{I(max)}$	86.7	2018/12/04 11:17:45
$L_{S(min)}$	51.2	2018/12/04 11:28:06
$L_{F(min)}$	50.0	2018/12/04 11:28:06
$L_{I(min)}$	50.7	2018/12/04 11:28:05
$L_{Peak(max)}$	98.2	2018/12/04 11:17:46

# Overloads	0	
Overload Duration	0.0	s

Statistics		
LAS5.00	74.3	dB
LAS10.00	72.8	dB
LAS33.30	65.9	dB
LAS50.00	63.6	dB
LAS66.60	61.3	dB
LAS90.00	57.1	dB



December 4, 2018

PARKER ENVIRONMENTAL CONSULTANTS

Summary

File Name on Meter	831_Data.137
Serial Number	0003748
Model	Model 831
Firmware Version	2.311
User	Adrianna Gjonaj
Job Description	TopGolf-Ontario Project

Location C: On the north side of 4th Street, east of N. Archibald Avenue

Noise Sources: Heavy vehicle traffic, delivery trucks, semi-trailer trucks

Measurement

Description	
Start	2018-12-04 12:03:04
Stop	2018-12-04 12:18:04
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2018-12-04 11:06:58
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Microphone Correction	Off
Integration Method	Linear
Gain	0.0 dB
Overload	142.8 dB

	A	**C**	**Z**
Under Range Peak	75.2	72.2	**77.2** dB
Under Range Limit	**26.1**	26.3	31.6 dB
Noise Floor	16.9	17.2	22.3 dB

Results

LA_{eq}	70.5 dB		
LAE	100.0 dB		
EA	1.115 mPa^2h		
$LZ_{peak\ (max)}$	2018-12-04 12:05:21	105.6 dB	
LAS_{max}	2018-12-04 12:03:23	82.3 dB	
LAS_{min}	2018-12-04 12:13:46	52.4 dB	
SEA	-99.9 dB		
LAS > 65.0 dB (Exceedance Counts / Duration)	33	617.6 s	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**Lden**	**LDay 07:00-19:00**
	70.5	70.5	70.5	70.5

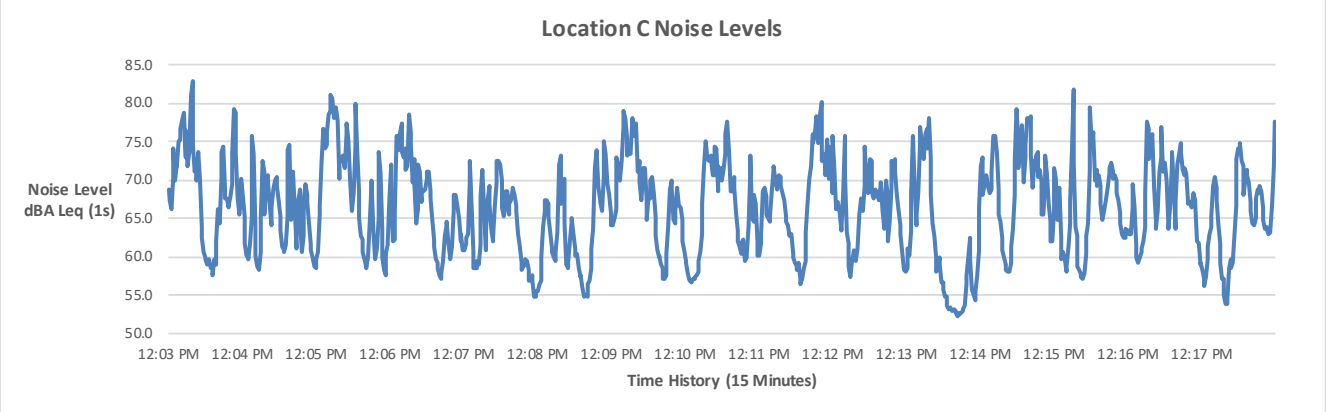
LC_{eq}	75.9 dB
LA_{eq}	70.5 dB
LC_{eq} - LA_{eq}	5.4 dB
LAI_{eq}	72.2 dB
LA_{eq}	70.5 dB
LAI_{eq} - LA_{eq}	1.7 dB

December 4, 2018

	A	
	dB	Time Stamp
L_{eq}	70.5	
$L_{S(max)}$	82.3	2018/12/04 12:03:23
$L_{F(max)}$	84.9	2018/12/04 12:03:23
$L_{I(max)}$	86.7	2018/12/04 12:03:23
$L_{S(min)}$	52.4	2018/12/04 12:13:46
$L_{F(min)}$	51.6	2018/12/04 12:13:45
$L_{I(min)}$	51.8	2018/12/04 12:13:45
$L_{Peak(max)}$	97.2	2018/12/04 12:03:57

# Overloads	0	
Overload Duration	0.0	s

Statistics		
LAS5.00	76.3	dB
LAS10.00	74.6	dB
LAS33.30	69.8	dB
LAS50.00	67.4	dB
LAS66.60	64.0	dB
LAS90.00	58.8	dB



PARKER ENVIRONMENTAL CONSULTANTS

December 4, 2018

Summary

File Name on Meter	831_Data.138
Serial Number	0003748
Model	Model 831
Firmware Version	2.311
User	Adrianna Gjonaj
Job Description	TopGolf-Ontario Project

Location D: South of the Project Site, within the Cucamonga-Guasti Regional Park
Noise Sources: Minimal park activities

Measurement

Description	
Start	2018-12-04 12:39:01
Stop	2018-12-04 12:54:01
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2018-12-04 11:06:58
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Microphone Correction	Off
Integration Method	Linear
Gain	0.0 dB
Overload	142.8 dB

	A	C	Z
Under Range Peak	75.2	72.2	**77.2** dB
Under Range Limit	**26.1**	26.3	31.6 dB
Noise Floor	16.9	17.2	22.3 dB

Results

LAeq	51.2 dB		
LAE	80.7 dB		
EA	13.070 µPa²h		
LZpeak (max)	2018-12-04 12:39:53	104.1 dB	
LASmax	2018-12-04 12:42:58	59.9 dB	
LASmin	2018-12-04 12:48:44	46.3 dB	
SEA	-99.9 dB		
LAS > 65.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LZpeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-22:00**	**Lden**	**LDay 07:00-19:00**
	51.2	51.2	51.2	51.2

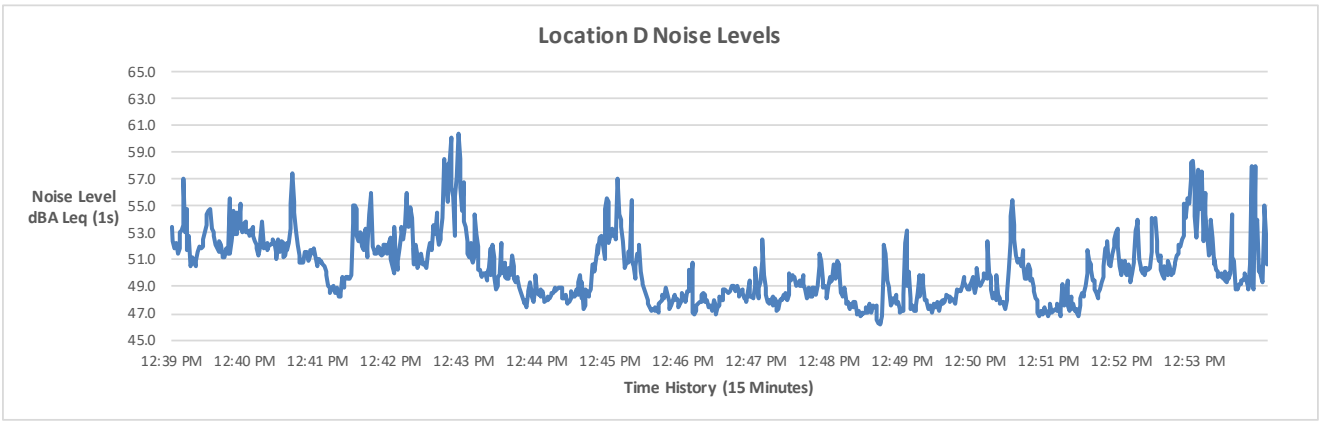
LCeq	66.8 dB
LAeq	51.2 dB
LCeq - LAeq	15.7 dB
LAleq	53.8 dB
LAeq	51.2 dB
LAleq - LAeq	2.7 dB

December 4, 2018

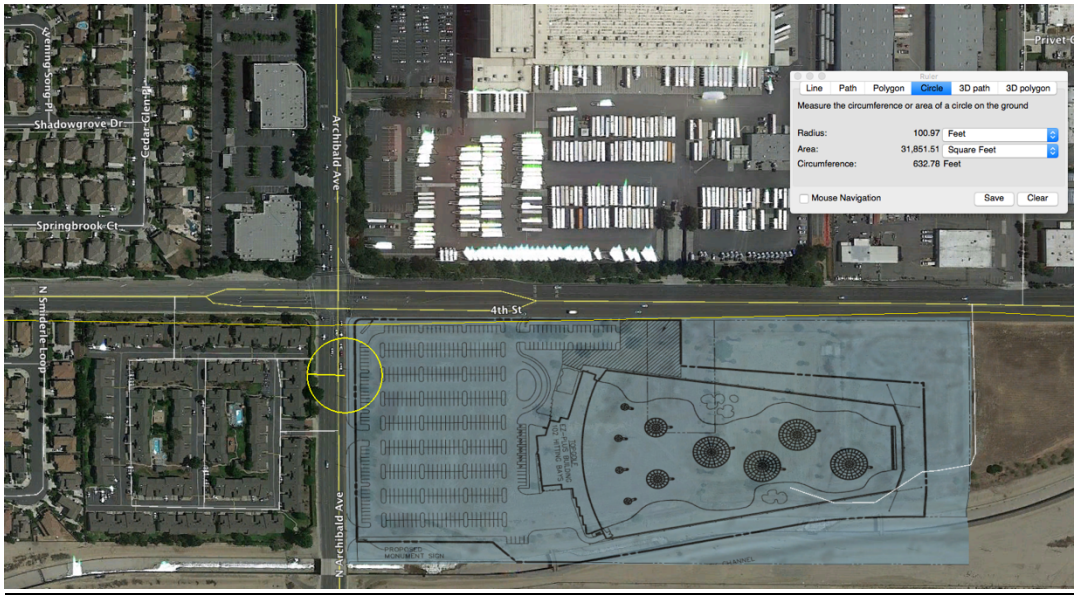
	A	
	dB	Time Stamp
L_{eq}	51.2	
$L_{S(max)}$	59.9	2018/12/04 12:42:58
$L_{F(max)}$	65.2	2018/12/04 12:53:48
$L_{I(max)}$	69.8	2018/12/04 12:53:48
$L_{S(min)}$	46.3	2018/12/04 12:48:44
$L_{F(min)}$	45.5	2018/12/04 12:48:42
$L_{I(min)}$	46.0	2018/12/04 12:48:43
$L_{Peak(max)}$	85.7	2018/12/04 12:53:48

# Overloads	0	
Overload Duration	0.0	s

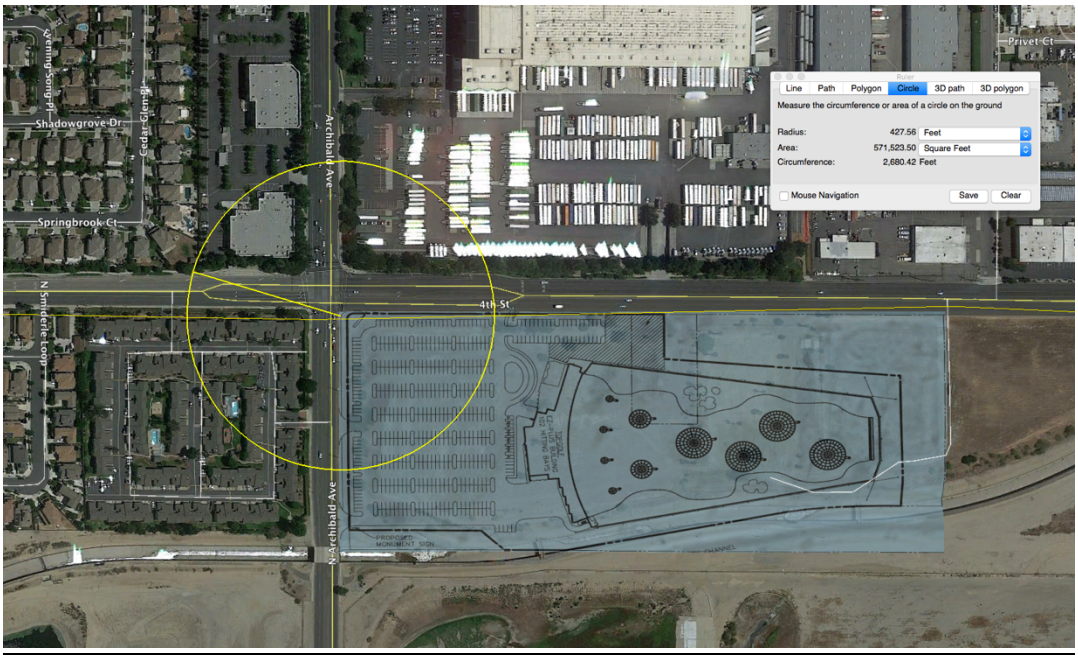
Statistics		
LAS5.00	55.0	dB
LAS10.00	53.7	dB
LAS33.30	51.3	dB
LAS50.00	49.9	dB
LAS66.60	48.8	dB
LAS90.00	47.7	dB



Reference Distances to Construction Site

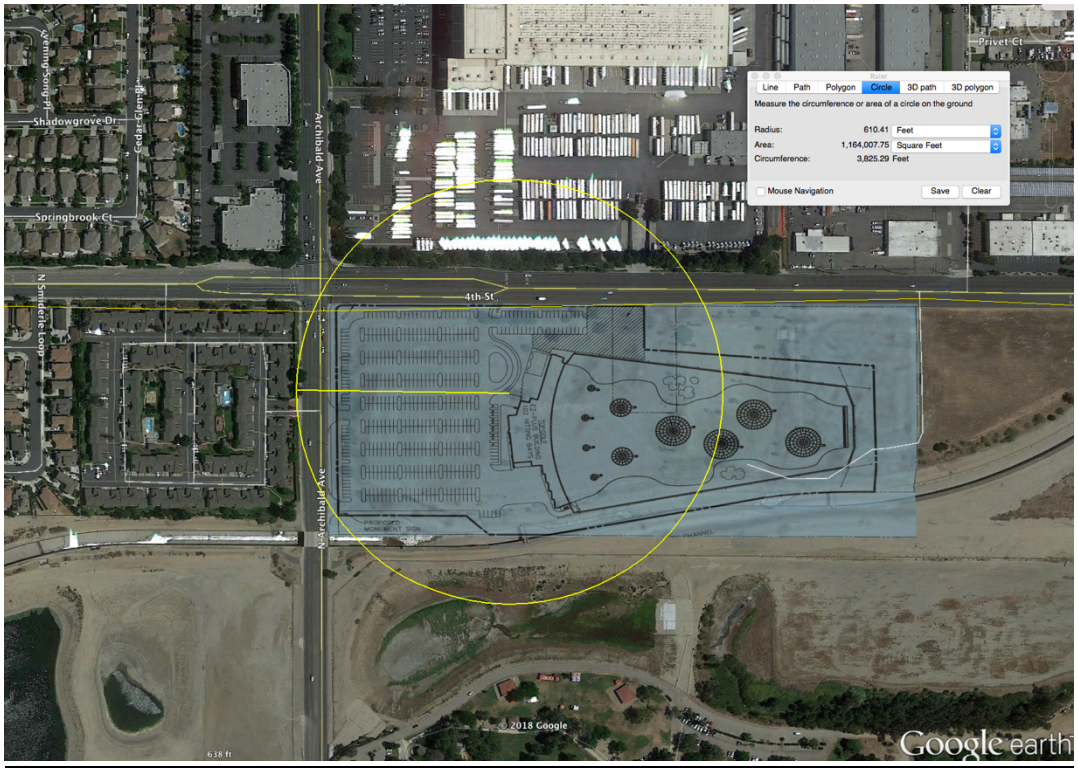


Receptor 1: 100 feet

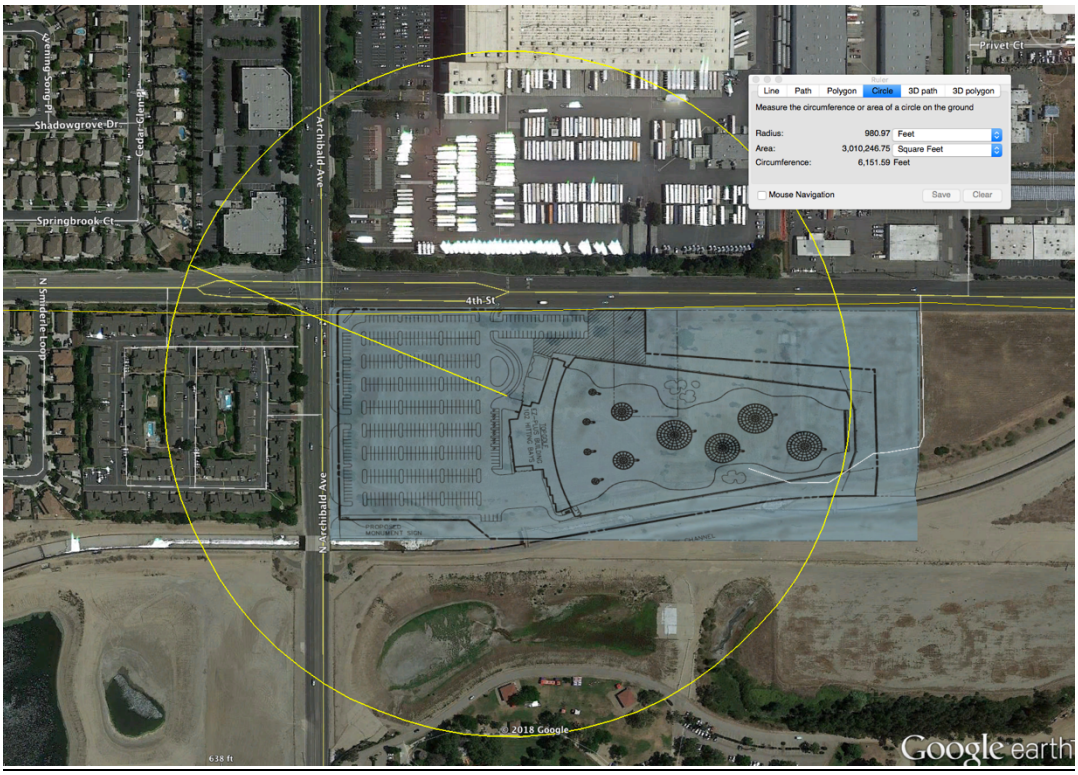


Receptor 2: 425 feet

Reference Distances to Outdoor Plaza/Dining Areas



Receptor 1: 610 feet



Receptor 2: 980 feet

Construction Noise Worksheets

Project: Topgolf Ontario
Date: February 7, 2019
Analyst: Elise Lorenzana

		Construction Noise at 50 feet with Mufflers				
		Ground Clearing	Grading/ Excavation	Foundations	Structural	Finishing
Sensitive Receptor	Distance to Construction (feet)	82	86	77	83	86
1	100	76.0	80.0	71.0	77.0	80.0
2	425	63.4	67.4	58.4	64.4	67.4

Noise Levels with Project Design Features					
Sensitive Receptor	Distance to Construction (feet)	Ambient Noise Levels	Exterior Nose Level with Barrier Attenuation [a]	Project Construction Noise Impact (dBA)[b]	Noise Impact [c]
1	100	75.2	75.0	78.1	2.9
2	425	68.5	62.4	69.5	1.0

[a] Sensitive receptors with solid block wall breaking line of site to Project Site incorporate a 5-dBA noise attenuation
[b] Ambient noise levels plus Project Construction noise levels.
[c] resulting noise level above existing monitored daytime ambient noise levels.
Calculations of estimated noise levels were are based on Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Final Report, May 2006.

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Project: TopGolf Ontario Project
Date: February 2019
Re: Operatinal Outdoor Noise Calculations

Adding Sound Pressure Levels of Male and Female

SPL(N1) =10log10 (10^SPL(N1male)/10 + 10^SPL(N1female)/10)
SPL(N1): Avg 87.72

	50% Male	50% Female	50% of people talking	Max Occupancy
N1:Total Noise Source	125	125	249.5	499

SPL(Total) = SPL(1) + 10*log(N)

	Conversational Noise Level		
	Male Volume	Female Volume	Combined Noise Level
SPL(1)	**65**	**62**	
SPL(N1): Total Noise Source	85.96	82.96	**87.72**

Audio System Noise Level (Conversational Noise+ 10 dBA)
97.72

Reference Outdoor Noise Level @ 50 ft.
92.72

* A 5 dBA attenuation rate was applied for glass/plexiglass barriers surrounding the outdoor exterior dining and plaza areas.

Noise Levels with Barrier Attenuation				
Sensitive Receptor	Distance to Patio (feet)	Ambient Noise Levels (dBA Leq)	Project Outdoor Noise Level at Receptor (dBA Leq)*	Does Noise Level Exceed Ambient?
1	610	75.2	66.0	No
2	980	68.5	61.9	No

*A 5 dBA attenuation factor was applied for both sensitive receptors due to the cinderblock walls that surround these uses and block the line of site from the Proposed Project.

Note: Calculations of estimated noise levels were are based on Federal Transit Administration, Transit Noise and Vibration Impact Assessment, Final Report, May 2006.

OFF-SITE TRAFFIC NOISE LEVELS PEAK HOUR AND CNEL

Project Name: Topgolf Ontario Project
Analyst: Elise Lorenzana
Date: 3/20/19

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Analysis Scenario(s):	(1)Existing, (2)Existing with Project, (3)Future without project, and (4)Future with Project
Source of Traffic Volumes:	Gibson Transportation Consulting, Inc., November 2018
Community Noise Descriptor:	L_{dn}: _____ CNEL: X

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Traffic Noise Levels

Analysis Condition / Roadway Name / Roadway Segment	Lanes	Median Width	Peak Hour Volume	ADT Volume[1]	Design Speed (mph)	Dist. from Center to Receptor[2]	Alpha Factor	Barrier Attn. dB(A)	Vehicle Mix: Medium Trucks	Vehicle Mix: Heavy Trucks	Peak Hour dB(A) L_{eq}	24-Hour dB(A) CNEL
Existing (2018) Traffic Volumes												
1 4th Street												
Between Vineyard Avenue and Archibald Avenue	4	15	1,577	15,770	55	40	0	0	1.8%	0.7%	74.6	73.85
2 4th Street												
Between Archibald Avenue and Turner Avenue	4	15	1,755	17,550	55	40	0	0	1.8%	0.7%	75.1	74.31
3 Archibald Avenue												
Between 6th Street and 4th Street	4	12	2,422	24,220	45	40	0	0	1.8%	0.7%	74.0	73.27
4 Archibald Avenue												
Between 4th Street and Inland Empire Boulevard	4	12	3,002	30,020	50	40	0	0	1.8%	0.7%	76.1	75.39
Existing (2018) With Project Traffic Volumes												
1 4th Street												
Between Vineyard Avenue and Archibald Avenue	4	15	1,601	16,010	55	40	0	0	1.8%	0.7%	74.7	73.91
2 4th Street												
Between Archibald Avenue and Turner Avenue	4	15	1,798	17,980	55	40	0	0	1.8%	0.7%	75.2	74.42
3 Archibald Avenue												
Between 6th Street and 4th Street	4	12	2,440	24,400	45	40	0	0	1.8%	0.7%	74.1	73.30
4 Archibald Avenue												
Between 4th Street and Inland Empire Boulevard	4	12	3,113	31,130	50	40	0	0	1.8%	0.7%	76.3	75.55
Future Without Project (2020) Traffic Volumes												
1 4th Street												
Between Vineyard Avenue and Archibald Avenue	4	15	1,849	18,490	55	40	0	0	1.8%	0.7%	75.3	74.54
2 4th Street												
Between Archibald Avenue and Turner Avenue	4	15	1,921	19,210	55	40	0	0	1.8%	0.7%	75.5	74.70
3 Archibald Avenue												
Between 6th Street and 4th Street	4	12	3,081	30,810	45	40	0	0	1.8%	0.7%	75.1	74.31
4 Archibald Avenue												
Between 4th Street and Inland Empire Boulevard	4	12	4,011	40,110	50	40	0	0	1.8%	0.7%	77.4	76.65
Future With Project (2020) Traffic Volumes												
1 4th Street												
Between Vineyard Avenue and Archibald Avenue	4	15	1,864	18,640	55	40	0	0	1.8%	0.7%	75.3	74.57
2 4th Street												
Between Archibald Avenue and Turner Avenue	4	15	1,964	19,640	55	40	0	0	1.8%	0.7%	75.6	74.80
3 Archibald Avenue												
Between 6th Street and 4th Street	4	12	3,099	30,990	45	40	0	0	1.8%	0.7%	75.1	74.34
4 Archibald Avenue												
Between 4th Street and Inland Empire Boulevard	4	12	4,113	41,130	50	40	0	0	1.8%	0.7%	77.5	76.76

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Existing Baseline (2018) without Project
Traffic Volumes - AM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

		109	1,028	95					
		<	v	>		EB			
EB:	581								
WB	677	160	^	**Int. 1**	^	87	581		
	1,258	337	>	total volume	<	399	WB		
		105	v	3,581	v	191	677		
		<	^	>					
		122	799	149					

INT 3: Archibald Ave. and 4th St.

		69	799	104					
		<	v	>		EB			
		55	^	**Int. 2**	^	128	570		
		366	>	total volume	<	380	WB		
		149	v	3,333	v	185	539		
		<	^	>					
		90	831	177					

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

		69	799	104					
		<	v	>		EB			
EB:	647								
WB	768	55	^	**Int. 1**	^	128	647		
	1,415	366	>	total volume	<	380	WB		
		149	v	3,333	v	185	693		
		<	^	>					
		90	831	177					

INT 4: 4th St. and Turner Ave.

		211	210	151					
		<	v	>		EB			
		81	^	**Int. 2**	^	144	609		
		495	>	total volume	<	532	WB		
		33	v	2,130	v	31	768		
		<	^	>					
		25	174	43					

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

		40	903	81					
		<	v	>		SB			
SB:	1,062								
NB	1,014	79	^	**Int. 1**	^	54	1,062		
	2,076	252	>	total volume	<	106	NB		
		103	v	2,650	v	56	976		
		<	^	>					
		24	811	141					

INT 3: Archibald Ave. and 4th St.

		69	799	104					
		<	v	>		SB			
		55	^	**Int. 2**	^	128	972		
		366	>	total volume	<	380	NB		
		149	v	3,333	v	185	1,014		
		<	^	>					
		90	831	177					

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

		69	799	104					
		<	v	>		SB			
SB:	1,367								
NB	1,183	55	^	**Int. 1**	^	128	1,133		
	2,550	366	>	total volume	<	380	NB		
		149	v	3,333	v	185	1,098		
		<	^	>					
		90	831	177					

INT 7: Archibald Ave. and Inland Empire Blvd.

		28	1,236	103					
		<	v	>		SB			
		12	^	**Int. 2**	^	67	1,367		
		73	>	total volume	<	132	NB		
		38	v	3,608	v	274	1,183		
		<	^	>					
		126	1,104	415					

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Existing Baseline (2018) without Project
Traffic Volumes - PM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

			122	846	118				
			<	v	>		EB		
EB:	663								
WB	914	197	^	**Int. 1**	^	115	663		
	1,577	357	>	total volume	<	465	WB		
		101	v	4,312	v	334	914		
			<	^	>				
			150	1,319	188				

INT 3: Archibald Ave. and 4th St.

			68	812	135				
			<	v	>		EB		
		63	^	**Int. 2**	^	145	578		
		399	>	total volume	<	655	WB		
		116	v	4,058	v	287	877		
			<	^	>				
			154	1,098	126				

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

			68	812	135				
			<	v	>		EB		
EB:	668								
WB	1,087	63	^	**Int. 1**	^	145	660		
	1,755	399	>	total volume	<	655	WB		
		116	v	4,058	v	287	1,087		
			<	^	>				
			154	1,098	126				

INT 4: 4th St. and Turner Ave.

			276	196	122				
			<	v	>		EB		
		57	^	**Int. 2**	^	214	668		
		571	>	total volume	<	703	WB		
		40	v	2,550	v	37	1,009		
			<	^	>				
			30	276	28				

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

			86	904	100				
			<	v	>		SB		
SB:	1,116								
NB	1,306	43	^	**Int. 1**	^	102	1,116		
	2,422	203	>	total volume	<	239	NB		
		68	v	3,145	v	144	1,256		
			<	^	>				
			69	1,103	84				

INT 3: Archibald Ave. and 4th St.

			68	812	135				
			<	v	>		SB		
		63	^	**Int. 2**	^	145	1,015		
		399	>	total volume	<	655	NB		
		116	v	4,058	v	287	1,306		
			<	^	>				
			154	1,098	126				

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

			68	812	135				
			<	v	>		SB		
SB:	1,469								
NB	1,533	63	^	**Int. 1**	^	145	1,215		
	3,002	399	>	total volume	<	655	NB		
		116	v	4,058	v	287	1,378		
			<	^	>				
			154	1,098	126				

INT 7: Archibald Ave. and Inland Empire Blvd.

			40	1,348	81				
			<	v	>		SB		
		26	^	**Int. 2**	^	57	1,469		
		60	>	total volume	<	194	NB		
		22	v	4,167	v	381	1,533		
			<	^	>				
			146	1,450	362				

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Existing (2018) with Project
Traffic Volumes - AM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

		INT 2: Vineyard Ave. and 4th St.							INT 3: Archibald Ave. and 4th St.						
			109	1,028	96					69	799	107			
			<	v	>		EB			<	v	>		EB	
EB:	582														
WB	677	160	^	**Int. 1**	^	87	582		55	^	**Int. 2**	^	128	571	
	1,259	337	>	total volume	<	399	WB		367	>	total volume	<	380	WB	
		105	v	3,582	v	191	677		149	v	3,343	v	189	541	
			<	^	>					<	^	>			
			122	799	149					92	831	177			

2. 4th Street, between Archibald and Turner

		INT 3: Archibald Ave. and 4th St.							INT 4: 4th St. and Turner Ave.						
			69	799	107					212	210	151			
			<	v	>		EB			<	v	>		EB	
EB:	651														
WB	775	55	^	**Int. 1**	^	128	651		81	^	**Int. 2**	^	144	610	
	1,426	367	>	total volume	<	380	WB		496	>	total volume	<	538	WB	
		149	v	3,343	v	189	697		33	v	2,138	v	31	775	
			<	^	>					<	^	>			
			92	831	177					25	174	43			

3. Archibald Avenue, between 6th and 4th

		INT 1: Archibald Ave. and 6th St.							INT 3: Archibald Ave. and 4th St.						
			40	906	81					69	799	107			
			<	v	>		SB			<	v	>		SB	
SB:	1,065														
NB	1,014	79	^	**Int. 1**	^	54	1,065		55	^	**Int. 2**	^	128	975	
	2,079	252	>	total volume	<	106	NB		367	>	total volume	<	380	NB	
		103	v	2,653	v	56	976		149	v	3,343	v	189	1,014	
			<	^	>					<	^	>			
			24	811	141					92	831	177			

4. Archibald Avenue, between 4th and Inland Empire

		INT 3: Archibald Ave. and 4th St.							INT 7: Archibald Ave. and Inland Empire Blvd.						
			69	799	107					29	1,237	103			
			<	v	>		SB			<	v	>		SB	
SB:	1,369														
NB	1,204	55	^	**Int. 1**	^	128	1,137		15	^	**Int. 2**	^	70	1,369	
	2,573	367	>	total volume	<	380	NB		73	>	total volume	<	132	NB	
		149	v	3,343	v	189	1,100		38	v	3,631	v	274	1,204	
			<	^	>					<	^	>			
			92	831	177					126	1,119	415			

Existing (2018) with Project
Traffic Volumes - PM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

		122	846	123					
		<	v	>		EB			EB
EB:	668								
WB	933	197	^	**Int. 1**	^	120	668	63	583
	1,601	357	>	total volume	<	465	WB	404	WB
		101	v	4,327	v	339	924	116	933
			<	^	>				
		150	1,319	188				210	1,107

INT 3: Archibald Ave. and 4th St.

		68	812	144					
		<	v	>		EB			EB
		63	^	**Int. 2**	^	145	583		
		404	>	total volume	<	655	WB		
		116	v	4,151	v	301	933		
			<	^	>				
		210	1,107	126					

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

		68	812	144					
		<	v	>		EB			EB
EB:	697								
WB	1,101	63	^	**Int. 1**	^	145	674	62	697
	1,798	404	>	total volume	<	655	WB	595	WB
		116	v	4,151	v	301	1,101	40	1,032
			<	^	>				
		210	1,107	126				30	276

INT 4: 4th St. and Turner Ave.

		281	196	122					
		<	v	>		EB			EB
		62	^	**Int. 2**	^	214	697		
		595	>	total volume	<	721	WB		
		40	v	2,602	v	37	1,032		
			<	^	>				
		30	276	28					

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

		86	913	100					
		<	v	>		SB			SB
SB:	1,125								
NB	1,315	43	^	**Int. 1**	^	102	1,125	63	1,024
	2,440	203	>	total volume	<	239	NB	404	NB
		68	v	3,163	v	144	1,265	116	1,315
			<	^	>				
		69	1,112	84				210	1,107

INT 3: Archibald Ave. and 4th St.

		68	812	144					
		<	v	>		SB			SB
		63	^	**Int. 2**	^	145	1,024		
		404	>	total volume	<	655	NB		
		116	v	4,151	v	301	1,315		
			<	^	>				
		210	1,107	126					

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

		68	812	144					
		<	v	>		SB			SB
SB:	1,516								
NB	1,597	63	^	**Int. 1**	^	145	1,229	35	1,516
	3,113	404	>	total volume	<	655	NB	60	NB
		116	v	4,151	v	301	1,443	22	1,597
			<	^	>				
		210	1,107	126				146	1,496

INT 7: Archibald Ave. and Inland Empire Blvd.

		54	1,381	81					
		<	v	>		SB			SB
		35	^	**Int. 2**	^	66	1,516		
		60	>	total volume	<	194	NB		
		22	v	4,278	v	381	1,597		
			<	^	>				
		146	1,496	362					

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Future (2020) without Project
Traffic Volumes - AM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

			113	1,353	136				
			<	v	>		EB		
EB:	666								
WB	769	166	^	**Int. 1**	^	105	666		
	1,435	350	>	total volume	<	415	WB		
		172	v	4,354	v	249	769		
			<	^	>				
			159	956	180				

INT 3: Archibald Ave. and 4th St.

			109	1,086	108				
			<	v	>		EB		
		69	^	**Int. 2**	^	133	651		
		381	>	total volume	<	395	WB		
		201	v	4,024	v	242	619		
			<	^	>				
			115	980	205				

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

			109	1,086	108				
			<	v	>		EB		
EB:	694								
WB	848	69	^	**Int. 1**	^	133	694		
	1,542	381	>	total volume	<	395	WB		
		201	v	4,024	v	242	770		
			<	^	>				
			115	980	205				

INT 4: 4th St. and Turner Ave.

			219	218	157				
			<	v	>		EB		
		84	^	**Int. 2**	^	150	654		
		536	>	total volume	<	603	WB		
		34	v	2,285	v	32	848		
			<	^	>				
			26	181	45				

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

			42	1,145	84				
			<	v	>		SB		
SB:	1,358								
NB	1,182	82	^	**Int. 1**	^	56	1,358		
	2,540	262	>	total volume	<	110	NB		
		107	v	3,119	v	106	1,125		
			<	^	>				
			25	933	167				

INT 3: Archibald Ave. and 4th St.

			109	1,086	108				
			<	v	>		SB		
		69	^	**Int. 2**	^	133	1,303		
		381	>	total volume	<	395	NB		
		201	v	4,024	v	242	1,182		
			<	^	>				
			115	980	205				

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

			109	1,086	108				
			<	v	>		SB		
SB:	1,778								
NB	1,395	69	^	**Int. 1**	^	133	1,529		
	3,173	381	>	total volume	<	395	NB		
		201	v	4,024	v	242	1,300		
			<	^	>				
			115	980	205				

INT 7: Archibald Ave. and Inland Empire Blvd.

			386	1,285	107				
			<	v	>		SB		
		177	^	**Int. 2**	^	70	1,778		
		100	>	total volume	<	188	NB		
		386	v	5,075	v	285	1,395		
			<	^	>				
			511	1,148	432				

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Future (2020) without Project
Traffic Volumes - PM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

			127	1,096	153				
			<	v	>		EB		
EB:	794								
WB	1,055	205	^	**Int. 1**	^	168	794		
	1,849	371	>	total volume	<	484	WB		
		156	v	5,402	v	403	1,055		
			<	^	>				
			236	1,733	270				

INT 3: Archibald Ave. and 4th St.

			99	1,039	140				
			<	v	>		EB		
		117	^	**Int. 2**	^	151	696		
		415	>	total volume	<	681	WB		
		164	v	5,010	v	333	997		
			<	^	>				
			217	1,462	192				

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

			99	1,039	140				
			<	v	>		EB		
EB:	756								
WB	1,165	117	^	**Int. 1**	^	151	747		
	1,921	415	>	total volume	<	681	WB		
		164	v	5,010	v	333	1,165		
			<	^	>				
			217	1,462	192				

INT 4: 4th St. and Turner Ave.

			287	204	127				
			<	v	>		EB		
		59	^	**Int. 2**	^	223	756		
		655	>	total volume	<	766	WB		
		42	v	2,748	v	38	1,084		
			<	^	>				
			31	287	29				

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

			89	1,096	104				
			<	v	>		SB		
SB:	1,351								
NB	1,730	45	^	**Int. 1**	^	106	1,351		
	3,081	211	>	total volume	<	249	NB		
		71	v	3,780	v	184	1,625		
			<	^	>				
			72	1,407	146				

INT 3: Archibald Ave. and 4th St.

			99	1,039	140				
			<	v	>		SB		
		117	^	**Int. 2**	^	151	1,278		
		415	>	total volume	<	681	NB		
		164	v	5,010	v	333	1,730		
			<	^	>				
			217	1,462	192				

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

			99	1,039	140				
			<	v	>		SB		
SB:	1,879								
NB	2,132	117	^	**Int. 1**	^	151	1,536		
	4,011	415	>	total volume	<	681	NB		
		164	v	5,010	v	333	1,871		
			<	^	>				
			217	1,462	192				

INT 7: Archibald Ave. and Inland Empire Blvd.

			393	1,402	84				
			<	v	>		SB		
		565	^	**Int. 2**	^	59	1,879		
		131	>	total volume	<	244	NB		
		563	v	6,291	v	396	2,132		
			<	^	>				
			570	1,508	376				

PARKER ENVIRONMENTAL CONSULTANTS

Future (2020) with Project
Traffic Volumes - AM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

			113	1,353	137				
			<	v	>		EB		
EB:	667								
WB	769	166	^	**Int. 1**	^	105	667		
	1,436	350	>	total volume	<	415	WB		
		172	v	4,355	v	249	769		
			<	^	>				
			159	956	180				

INT 3: Archibald Ave. and 4th St.

			109	1,086	111				
			<	v	>		EB		
		69	^	**Int. 2**	^	133	652		
		382	>	total volume	<	395	WB		
		201	v	4,034	v	246	621		
			<	^	>				
			117	980	205				

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

			109	1,086	111				
			<	v	>		EB		
EB:	698								
WB	852	69	^	**Int. 1**	^	133	698		
	1,550	382	>	total volume	<	395	WB		
		201	v	4,034	v	246	774		
			<	^	>				
			117	980	205				

INT 4: 4th St. and Turner Ave.

			220	218	157				
			<	v	>		EB		
		84	^	**Int. 2**	^	150	655		
		537	>	total volume	<	606	WB		
		34	v	2,290	v	32	852		
			<	^	>				
			26	181	45				

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

			42	1,148	84				
			<	v	>		SB		
SB:	1,361								
NB	1,182	82	^	**Int. 1**	^	56	1,361		
	2,543	262	>	total volume	<	110	NB		
		107	v	3,122	v	106	1,125		
			<	^	>				
			25	933	167				

INT 3: Archibald Ave. and 4th St.

			109	1,086	111				
			<	v	>		SB		
		69	^	**Int. 2**	^	133	1,306		
		382	>	total volume	<	395	NB		
		201	v	4,034	v	246	1,182		
			<	^	>				
			117	980	205				

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

			109	1,086	111				
			<	v	>		SB		
SB:	1,780								
NB	1,416	69	^	**Int. 1**	^	133	1,533		
	3,196	382	>	total volume	<	395	NB		
		201	v	4,034	v	246	1,302		
			<	^	>				
			117	980	205				

INT 7: Archibald Ave. and Inland Empire Blvd.

			387	1,286	107				
			<	v	>		SB		
		180	^	**Int. 2**	^	73	1,780		
		100	>	total volume	<	188	NB		
		386	v	5,098	v	285	1,416		
			<	^	>				
			511	1,163	432				

PARKER
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Future (2020) with Project
Traffic Volumes - PM Peak Hour

Street: Roadway Segment

1. 4th Street, between Vineyard and Archibald

INT 2: Vineyard Ave. and 4th St.

			127	1,096	158				
			<	v	>		EB		
EB:	799								
WB	1,065	205	^	**Int. 1**	^	173	799		
	1,864	371	>	total volume	<	484	WB		
		156	v	5,417	v	408	1,065		
			<	^	>				
			236	1,733	270				

INT 3: Archibald Ave. and 4th St.

			99	1,039	149				
			<	v	>		EB		
EB:	799								
WB	1,065	117	^	**Int. 2**	^	151	701		
	1,864	420	>	total volume	<	681	WB		
		164	v	5,103	v	347	1,053		
			<	^	>				
			273	1,471	192				

2. 4th Street, between Archibald and Turner

INT 3: Archibald Ave. and 4th St.

			99	1,039	149				
			<	v	>		EB		
EB:	785								
WB	1,179	117	^	**Int. 1**	^	151	761		
	1,964	420	>	total volume	<	681	WB		
		164	v	5,103	v	347	1,179		
			<	^	>				
			273	1,471	192				

INT 4: 4th St. and Turner Ave.

			292	204	127				
			<	v	>		EB		
EB:	785								
WB	1,179	64	^	**Int. 2**	^	223	785		
	1,964	679	>	total volume	<	784	WB		
		42	v	2,800	v	38	574		
			<	^	>				
			31	287	29				

3. Archibald Avenue, between 6th and 4th

INT 1: Archibald Ave. and 6th St.

			89	1,105	104				
			<	v	>		SB		
SB:	1,360								
NB	1,739	45	^	**Int. 1**	^	106	1,360		
	3,099	211	>	total volume	<	249	NB		
		71	v	3,798	v	184	1,634		
			<	^	>				
			72	1,416	146				

INT 3: Archibald Ave. and 4th St.

			99	1,039	149				
			<	v	>		SB		
SB:	1,360								
NB	1,739	117	^	**Int. 2**	^	151	1,287		
	3,099	420	>	total volume	<	681	NB		
		164	v	5,103	v	347	1,739		
			<	^	>				
			273	1,471	192				

4. Archibald Avenue, between 4th and Inland Empire

INT 3: Archibald Ave. and 4th St.

			99	1,039	149				
			<	v	>		SB		
SB:	1,926								
NB	2,187	117	^	**Int. 1**	^	151	1,550		
	4,113	420	>	total volume	<	681	NB		
		164	v	5,103	v	347	1,936		
			<	^	>				
			273	1,471	192				

INT 7: Archibald Ave. and Inland Empire Blvd.

			407	1,435	84				
			<	v	>		SB		
SB:	1,926								
NB	2,187	574	^	**Int. 2**	^	59	1,926		
	4,113	131	>	total volume	<	244	NB		
		563	v	6,393	v	396	2,187		
			<	^	>				
			570	1,554	376				

Appendix B

Preparer's Resumes and Qualifications

PARKER
ENVIRONMENTAL CONSULTANTS

STAFF RESUMES

SHANE E. PARKER
President

Shane Parker has over 20 years of professional experience in the environmental consulting field. Mr. Parker's experience is extensive and varied and has included complex projects with multi-jurisdictional boundaries involving federal, state, regional and local governmental agencies. Mr. Parker has managed and authored CEQA- and NEPA-related documentation for numerous lead agencies throughout the southern California region, including the cities of Agoura Hills, Duarte, Inglewood, Lancaster, Los Angeles, Malibu, Manhattan Beach, Santa Clarita, Santa Monica, Murrieta, Rancho Palos Verdes, Torrance, and West Hollywood. Other lead agencies Mr. Parker has provided services to include the Community Redevelopment Agency of the City of Los Angeles, the County of Los Angeles Metropolitan Transportation Authority, the Los Angeles Memorial Coliseum Commission, the Los Angeles Community College District, and Santa Monica Community College District.

EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS

- B.A. in Geography/Environmental Studies-University of California, Los Angeles
- Association of Environmental Professionals (AEP) (Member)
- City of Malibu Environmental Review Board Member (2002-2007)
- Urban Land Institute (Member)
- Participates in CEQA and NEPA workshops and conferences

PROFESSIONAL EXPERIENCE

- 2010-Present, President, Parker Environmental Consultants, LLC
- 1999-2010, Vice President/Principal, Christopher A. Joseph & Associates
- 1995-1999, Senior Environmental Planner, PCR Corp.
- 1992 USFS, Forestry Technician/Seasonal Fire Fighter.

PROJECT EXPERIENCE

Hotels/Entertainment

- The Marriott Courtyard Suites and Residence Inn Hotel Project (LASED Specific Plan)
- Howard Hughes Center (EIR Addenda)
- Malibu Forge Lodge Bed & Breakfast (EIR)
- Malibu Civic Center/La Paz Project (EIR)
- Manhattan Beach Civic Center/Metlox (EIR)
- Schrader Hotel MND
- Los Angeles Sports Arena Redevelopment EIR
- Los Angeles Memorial Coliseum Redevelopment EIR

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SHANE PARKER, President (Continued)

Schools and Institutional Campuses

- Emerson College (EIR)
- Kaiser Baldwin Hills Medical Office Building (MND)
- Kaiser West Los Angeles Medical Office Building Parking Structure (MND)
- Kaiser Mental Health Campus Medical Office Building (MND)
- University Gateway (Negative Declaration)
- Santa Monica College (SMC) - Malibu Campus (EIR)
- SMC Bundy Campus Master Plan (EIR)
- SMC Madison Theater Project (EIR) Schools and Institutional Campuses
- SMC Career and Educational Facilities Master Plan (2010 Update) (EIR)
- Southwestern School of Law Student Housing and Campus Improvement Project
- Calabasas Viewpoint School Modernization Program (EIR)
- Los Angeles Trade-Technical College 30- Year Master Plan (EIR)
- Colburn School of Performing Arts Expansion Project (IS/MND)
- City of Hope Arnold & Mabel Beckman Center for Cancer Immunotherapeutics and Tumor Immunology ("CITI") Building MND
- Fashion Institute of Design and Merchandising (FIDM) Residences (IS/MND)
- Hillcrest Christian School and Church EIR

High Density Residential/Mixed-Use

- City Market Los Angeles EIR
- Sunset and Gordon Mixed-Use Project (EIR)
- New Dana Strand Phase IV (MND)
- Abode Rolland Curtis Apartments (MND)
- Fallbrook Village (MND)
- Blake Street Riverfront Small Lot Subdivision (MND)
- 4000 Chevy Chase Small Lot Subdivision (MND)
- Topaz at 550 Main Street (MND)
- Olympic and Hill Mixed-Use Project (MND)
- Onyx Mixed-Use Project (MND)
- G12 Mixed-Use Project (MND)
- 801 S. Olive Street (MND)
- Olympic & Olive Mixed-Use Project (MND)
- 1,000 Grand Mixed-Use Project (MND)
- Olympic & Olive Mixed-Use Project (MND)
- Glass Tower/11th and Grand (MND)
- 8th and Grand Mixed-Use Project (MND)
- 1133 S. Hope Street (MND)
- Park 5th Project (Subsequent EIR)
- 9th and Hill Mixed-Use Project (MND)
- 8th and Spring Mixed Use Project (MND)
- Hollywood & Western Mixed-Use (MND)
- Valencia Project Mixed Use (MND)
- Wilshire Center Mixed Use Project

Historic/Cultural

- 504 Paseo del Mar EIR
- Getty Villa Master Plan EIR
- Coronel Apartment Project (EIR)
- Sapphire Mixed Use Project (EIR)
- 9th & Hill (Alexan) Mixed Use Project (MND) • Los Angeles Sports Arena Redevelopment EIR
- Los Angeles Memorial Coliseum Redevelopment EIR

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STAFF RESUMES

ELISE LORENZANA, SENIOR ENVIRONMENTAL PLANNER

Ms. Lorenzana is a Senior Environmental Planner with a demonstrated experience in all aspects of the preparation of environmental documents pursuant to the California Environmental Quality Act (CEQA), with a focus on preparing air quality and greenhouse gas emission modeling and community-based noise and vibration impact assessments. Ms. Lorenzana has prepared numerous air quality and noise technical reports in compliance of CEQA. Ms. Lorenzana has been conducting air quality modeling pursuant to the SCAQMD's Air Quality Handbook (1993) and is experienced in utilizing CARB's CalEEMod air quality modeling platform for quantifying air quality emissions for development projects. She also possesses in-depth knowledge of quantifying and modeling noise and vibration impacts from project operation, construction, vibration, and traffic noise; in conformance with the Federal Transit Administration and California Department of Transportation guidance and procedures. Ms. Lorenzana provides field support for community-based ambient noise measurements manages noise calculations data worksheets for quantification of noise impacts. She regularly conducts land use and analytical research assignments in support of a wide array of environmental issues including but not limited to land use/zoning, aesthetics/views, population and housing, traffic and circulation, community based noise impact assessments, public services, public utilities, air quality modeling and greenhouse gas emissions inventories. Ms. Lorenzana also assists in document production and quality control/quality assurance protocols.

EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS

- B.S. in Atmospheric, Oceanic & Environmental Sciences, University of California - Los Angeles, CA
- A.S. in Water Systems Technology - College of the Canyons, CA
- Certified California Water Distribution Operator, Grade D2
- Member of the Association of Environmental Professionals (2016 - Present)

PROFESSIONAL EXPERIENCE

- 2015-Present: Parker Environmental Consultants, Senior Environmental Planner
- 2014: National Aeronautics and Space Administration (NASA), Project Consultant
- 2013: USDA Forest Service, Riverside CA, Weather Observer
- 2012: PACE LA, Weatherization Intern
- 2010: CALPIRG, Environmental and Renewable Energy Policy Advocate

PROJECT EXPERIENCE

- SB Omega Project
- Hill Street Lofts Project
- Broadway Lofts Project
- Burbank 14-Unit Apt. Project
- 6477 Foothill Blvd. Carwash Project
- 940 Hill Street Project
- 2130 Violet Street Project
- Schrader Hotel Project
- Olympic and Hill Project
- 4th and Spring Hotel Project
- PATH Villas Hollywood Project
- 5950 Jefferson Blvd Project
- 6711 Sepulveda Residential Project

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STAFF RESUMES

ADRIANNA GJONAJ

Assistant Planner

Ms. Gjonaj has a Bachelor of Liberal Arts in Economics and Urban Studies from Loyola Marymount University. Ms. Gjonaj has prior experience with the Los Angeles Economic Development Corporation in assisting the Director of Innovation with projects relating to entrepreneurial developments in Los Angeles such as research on Incubators and Accelerators. She also organized the initial steps for Innovate LA 2017 – a two week long event showcasing the entrepreneurs and innovators in Los Angeles. Prior to her work with the LAEDC, she completed an internship with CURes (Center for Urban Resilience) and worked on a social science research study in which urban ecology is explored through sustainable development efforts. She completed a project for the city of Colton that analyzes the conditions of city owned trees and their productivity in regards to lowering energy costs and completed a Baldwin Hills study on efficiency of park developments. As part of Parker Environmental Consultants team, Adrianna assists in research and data collection, graphics, including site photos, noise monitoring and general document review and quality control. Ms. Gjonaj is also responsible for filing and recording various legal public notices with the Los Angeles County Clerk/Registrar's Office including NOPs and NOC/NOAs and NODs.

EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS

- Bachelor of Liberal Arts in Economics and Urban Studies, Loyola Marymount University, CA
- Association of Environmental Professionals (AEP)
- Economics Society (LMU), member.

PROFESSIONAL EXPERIENCE

- Present: Assistant Planner, Parker Environmental Consultants
- 1/2017-5/2017: LAEDC (Los Angeles Economic Development Corporation)
- 10/2016 – 05/2017: CURes (Center for Urban Resilience)
- 2/2016-8/2016: Enrou Inc.
- 9/2013-05/2017: Academic Affairs Budget Office; LMU

PROJECT EXPERIENCE

- Sunset and Gordon Supplemental EIR
- Kaiser Watts Learning Center Mitigation Monitoring and Reporting Program
- Olympic and Hill Mixed-Use Project (MND)
- Hope Street Tower Mixed-Use Project (MND)
- 2800 Casitas Avenue Lofts EIR
- Kaiser Mental Health Campus EIR
- Deluxe Hollywood Mixed-Use Project (SCEA)
- 3555 Figueroa Mixed-Use Project (Categorical Exemption)
- 13716 Victory Boulevard (Cat-Ex)
- 714-760 Grand View St (Cat-Ex)
- South Park Tower (SCEA)
- TopGolf Ontario Noise Monitoring