INTRODUCTION

The purpose of this technical noise memorandum is to assess the Projects potential noise impacts within the Rotten Robbie #11 Project area. The analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations.

PROJECT DESCRIPTION

The Rotten Robbie #11 Project site is located in the City of San José (City), located in north-central Santa Clara County. The Project site is an approximately 0.52-acre site located at the corner of Story Road/ S. Jackson Avenue intersection. The site is generally bound by residential neighborhoods in all directions, though there are other commercial buildings to the south and west. The Project site currently contains an operational gasoline dispensing station with 12 fueling positions, underground gasoline storage tanks and a 1,300-square foot convenience store.

The Rotten Robbie Corporation proposes to renovate and reconfigure the existing operation on-site with the demolition of the existing convenience store located at the central portion of the site. The Project would replace the demolished convenience store building with a new 3,200 square foot convenience store building located at the northwestern corner of the Project site. Eleven parking spaces would span the front of the building. The existing fuel island, underground tanks, and pipeline systems would remain and will remain untouched and fully intact during the demolition and construction of the new building.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 decibels (dBA) for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 10 to 20 dBA (FHWA 2011). In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver. The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

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The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined as follows:

- **L_{eq} (Equivalent 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_{dn} (Day-Night Average**) is a 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- **CNEL (Community Noise Equivalent Level)** is a 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. 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.

Vibration Fundamentals

Ground vibration can be measured several ways to quantify the amplitude of vibration produced. This can be through peak particle velocity or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

Existing Noise Environment

The noise environment in the Proposed Project area in impacted by various noise sources. The most common and significant noise source in the Project area includes all mobile sources, especially cars and trucks traveling on Story Road and S. Jackson Avenue. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise. The Project site is located approximately one mile from the Reid-Hillview Airport yet is located outside of typical flight paths.

Existing Ambient Noise Measurements

The Project site is flat developed land with an existing operational gasoline dispensing station with 12 fueling positions, underground gasoline storage tanks and a 1,300-square foot convenience store. The surrounding land uses are composed of a mix of residential and commercial uses. In order to quantify existing ambient noise levels in the Project area, ECORP Consulting conducted three short-term noise measurements on March 19, 2019. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site (**Attachment A**). The 10-minute measurements were taken between 11:00 a.m. and 11:39 a.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. The average noise levels and sources of noise measured at each location are listed in in **Table 1**.

Table 1. Existing (Baseline) Noise Measurements

Site Number	Location	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
1	On S. Jackson Avenue facing towards the intersection, behind the Project site, and next to the bus stop.	**72.2**	49.1	98.6	11:00 a.m. – 11:10 a.m.
2	East of Project site on Story Road facing the intersection and adjacent to residence.	**65.1**	48.7	77.6	11:15 a.m.- 11:25 a.m.
3	On Story Road across the street from the Project site and next to the KFC.	**73.8**	51.7	97.3	11:29 a.m. – 11:39 a.m.

*Source: Measurements were taken by ECORP Consulting with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See **Attachment A** for noise measurement outputs.*

As shown in **Table 1**, the ambient recorded noise levels range from 65.1 dBA to 73.8 dBA near the Project site. The most common noise source in the Project vicinity is automotive vehicles (cars, trucks, motorcycles). Traffic moving along streets produces a sound level that remains relatively constant and is part of the Project area's minimum ambient noise level. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies. Additionally, Appendix C of the City 2004 General Plan EIR, *Environmental Noise Assessment*, depicts long-term measurements near the Project area, taken on Story Road, range from 70 to 74 dBA DNL (Day-Night Average). This same document predicts future traffic noise to be 72 dBA DNL at full Project buildout of the City.

METHODOLOGY

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. In order to estimate the worst-case construction noise levels that may occur at the

nearest noise-sensitive receptors in the Project vicinity, predicted construction noise levels were calculated utilizing the Federal Highway Administration's Roadway Construction Model (2008). Operational noise levels are addressed qualitatively using information from Caltrans. Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from Caltrans. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby land uses.

NOISE IMPACT ANALYSIS

Project Construction Noise

Would the Project Result in Short-Term Construction-Generated Noise in Excess of Noise Standards?

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for on-site construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., building construction, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive receptors in the vicinity of the construction site.

Table 2 indicates the anticipated noise levels of construction equipment. The average noise levels presented in **Table 2** are based on the quantity, type, and acoustical use factor for each type of equipment that is anticipated to be used.

Table 2. Maximum Noise Levels Generated by Construction Equipment		
Type of Equipment	**Maximum Noise (L_{max}) at 50 Feet (dBA)**	**Maximum 8-Hour Noise (L_{eq}) at 50 Feet (dBA)**
Crane	80.6	72.6
Dozer	81.7	77.7
Excavator	80.7	76.7
Generator	80.6	77.6
Grader	85.0	81.0
Paver	77.2	74.2
Roller	80.0	73.0
Tractor	84.0	80.0
Dump Truck	76.5	72.5
Concrete Pump Truck	81.4	74.4
Welder	74.0	70.0

Source: Federal Highway Administration, Roadway Construction Noise Model (FHWA-HEP-05-054), dated January 2008.

Nearby noise-sensitive land uses consist of single-family residence located directly adjacent, less than 20 feet, from the project site to the northeast. Due to the close proximity, the residence will experience noise levels in excess of what is presented in **Table 2**.

The City limits the time that construction can take place but does not promulgate numeric thresholds pertaining to the noise associated with construction. Specifically, Chapter 20.100.450 of the City's Municipal Code states that construction within 500 feet of a residential unit can take place between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, or at any time on the weekends. It is typical to regulate construction noise in this manner since construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Furthermore, the City of San José is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the Project site and would not be concentrated at one point. The Standard Permit Conditions below outline the limited construction hours and other measures to reduce noise during the construction period. Therefore, noise generated during construction activities, as long as conducted within the permitted hours and in compliance with the Standard Permit Conditions, would not exceed City noise standards.

Standard Permit Conditions

- Limit construction hours to between 7:00 a.m. and 7:00 p.m., Monday through Friday, unless permission is granted with a development permit or other planning approval. No construction activities are permitted on the weekends at sites within 500 feet of a residence.

- Construct solid plywood fences around ground level construction sites adjacent to operational business, residences, or other noise-sensitive land users.
- Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Prohibit unnecessary idling of internal combustion engines.
- Locate stationary noise-generated equipment, such as air compressors or portable power generators, as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generated equipment when located near adjacent sensitive land uses.
- Utilize "quiet" air compressors and other stationary noises sensitive sources where technologies exist.
- Control noise from construction workers' radios to a point where they are not audible at existing residence boarding the Project site.
- Notify all adjacent business, residences, and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and nearby residence.
- If complaints are received or excess noise levels cannot be reduced using the measures above, erect a temporary noise control blanket barrier along surrounding building facades that face the construction site.
- Designate a "disturbance coordinator, who shall be responsible for responding to any complaints about construction noise. The disturbance coordinator shall determine the cause of the noise complaint (e.g. bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Project Operational Noise

Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?

Project Land Use Compatibility

The most basic planning strategy to minimize adverse impacts on new land uses due to noise is to avoid designating certain land uses at locations within the City that would negatively affect noise sensitive land users. Users such as schools, hospitals, child care, senior care, congregate care, churches, and all types of residential use should be located outside of any area anticipated to exceed acceptable noise levels as defined by a set of Land Use Compatibility Guidelines or should be protected from noise through sound attenuation measures such as site and architectural design and sound walls.

The City of San José Envision San José 2040 General Plan provides policy direction for minimizing noise impacts on the community based on Land use Compatibility Guidelines established by the State of California. These guidelines, presented as **Table 3**, provide the City with a tool to gauge the compatibility of new land users relative to existing noise levels. Specifically, **Table 3** identifies normally acceptable, conditionally acceptable and unacceptable noise levels for various land uses, including commercial land uses such as those proposed by the Project. In the case that the ambient noise levels identified at the Proposed Project site fall within levels considered normally acceptable, the Project is considered compatible with the existing noise environment. As shown in **Table 3**, an acceptable existing noise level for locating commercial uses is 55-70 dBA.

Table 3. Land Use Compatibility Guidelines for Community Noise in San José

Land Use Category	Exterior Day-Night Average Value in Decibels					
	55	60	65	70	75	80
1. Residential, Hotels and Motels, Hospitals and Residential Care						
2. Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds						
3. Schools, Libraries, Museums, Meeting Halls, and Churches						
4. Office Buildings, Business Commercial, and Professional Offices						
5. Sports Arenas, Outdoor Spectator Sports						
6. Public and Quasi-Public Auditoriums, Concert Halls, and Amphitheaters						

	Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable: Specified land use may be permitted only after detailed analysis of the noise reduction requirements and noise mitigation features included in the design.
	Unacceptable: New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies. (Development will only be considered when technically feasible mitigation is identified that is also compatible with relevant design guidelines.)

In order to quantify existing ambient noise levels in the Project area, ECORP conducted three short-term noise measurements on March 19, 2019. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site and are considered representative of the noise levels throughout the day. As shown in **Table 1**, the ambient noise levels near the Project site fall between 65.1 dBA to 73.8 dBA. The location closest to the Project site (approximately 56 feet), and the most representative of noise levels of the Project site, is Site 2 with a recorded noise level of 65.1 dBA. As this noise level falls within the "Normally Acceptable" standards provided for commercial land use compatibility, the Project site is considered an appropriate noise environment to locate the proposed land use. Additionally, Project site is already currently a functioning gas station and convenience

store. The Project would be demolishing the existing convenience store building on site and construct a new convenience store. The land use on the site would remain the same.

Project On-Site Operational Noise

Noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest noise-sensitive land uses consist of single-family residences located directly adjacent (less than 20 feet) to the Project site to the northeast.

As previously stated, the Project would demolish the existing convenience store building on-site and build a new convenience store. The land use of the site would remain unchanged. The ambient noise level recorded near the Project site fall between 65.1 dBA and 73.8 dBA. Since the land use would not change, it can be assumed that the existing noise generated on the Project site would remain the same once construction is complete. The on-site operations of the Proposed Project would have no noticeable effect on the existing ambient noise environment.

Operational Off-Site Traffic Noise

Project operation would also result in additional traffic on adjacent roadways, thereby increasing vehicular noise in the Project vicinity. Future traffic noise levels throughout the Project vicinity were modeled based on the traffic volumes identified by the Project's Local Transportation Analysis prepared by Kimley Horn (2020). The Project is forecasted to generate 2,681 trips per day. This would be an increase of 407 trips compared to the current 2,274 trips per day currently generated at the Project site. According to the California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway would result in an increase of 3 dB (a barely perceptible increase). Due to the fact that the Proposed Project would not result in a doubling of traffic, its contribution to existing traffic noise would not be perceptible.

Project Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors.

Groundborne vibration levels associated with construction equipment are summarized in **Table 4**. Construction activities are expected to include all or some of the equipment listed in **Table 4**.

Table 4. Vibration Source Amplitudes for Construction Equipment at 20 Feet	
Equipment Type	**Peak Particle Velocity at 20 Feet (inches per second)**
Large Bulldozer	0.124
Caisson Drilling	0.124
Loaded Trucks	0.106
Rock Breaker	0.115
Jackhammer	0.049
Small Bulldozer/Tractor	0.004

Source: FTA 2018

Policy EC-2.3 of the General Plan requires new development to minimize vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, a vibration limit of 0.20 inches per second peak particle velocity is used to minimize the potential for cosmetic damage at buildings of normal conventional construction, such as those in the Project area. It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure.

The nearest structures of concern to the construction site are single-family residence located directly adjacent, less than 20 feet, to the northeast. The single-family residences are considered normal conventional construction and are subject to a vibration limit of 0.20 inches per second peak particle velocity. Based on the vibration levels presented in **Table 4**, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.124 inches per second peak particle velocity at 20 feet. Multiple pieces of heavy-duty construction equipment shall not be used in conjunction to prevent an increase in groundborne vibration above the City's threshold. Therefore, vibration from construction activities experienced at the nearest adjacent residences would be expected to be below the 0.20 inch per second peak particle velocity threshold.

Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. Therefore, the Project would result in no groundborne vibration impacts during operations.

Airport Noise

Would the Project Expose People Residing or Working in the Project Area to Excessive Airport Noise Levels?

The Project site is located approximately one mile northwest of the Reid-Hillview Airport. This airport is owned and operated by Santa Clara County and primarily serves small aircrafts and general aviation demands (2011a). According to the Santa Clara County Comprehensive Land Use Plan for the Reid-Hillview Airport (2016), the Proposed Project site is located outside the typical flight paths. Therefore, would not result in the exposure of people residing or working in the Project area to excessive noise.

Cumulative Nosie Impacts

Cumulative Construction Noise

Construction activities associated with the Proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas immediately adjacent to the construction site. Construction noise for the Proposed Project was determined to be less than significant following compliance with the City's General Plan. Cumulative development in the vicinity of the Project site could result in elevated construction noise levels at sensitive receptors in the Project area. However, each project would be required to comply with the applicable limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Cumulative Operational Noise

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to the Project and other projects in the vicinity. Long-term noise sources associated with development at the Project, combined with other cumulative projects, could cause local noise level increases. Noise levels associated with the Proposed Project and related cumulative projects together could result in higher noise levels than considered separately. However, the expected combined cumulative effect within the Project area would not be expected to exceed City standards. Project traffic would not result in a significant increase in traffic noise on a Project level, so the Project's contribution to cumulative impacts would also be less than significant. Additionally, due to the fact that use of the site would remain unchanged in terms of the land use, it can be assumed that the ambient noise on site would remain the same.

REFERENCES

Caltrans (California Department of Transportation). 2004. Transportation- and Construction-Induced Vibration Guidance Manual.

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City of San José. 2000. City of San José Municipal Code Volume I.

Kimley Horn. 2020. 2305 Story Road Rotten Robbie Local Transportation Analysis.

Santa Clara County. 2011 (amended 2016). Comprehensive Land Use Plan.

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FHWA (Federal Highway Administration). 2008. Roadway Construction Noise Model.

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Santa Clara County. 2016. Santa Clara County Comprehensive Land Use Plan for the Reid-Hillview Airport.

Existing Baseline Noise Measurements

Site Number: 1			
Recorded By: Rosey Worden			
Job Number: 2018-211			
Date: 3/19/2019			
Time: 11:00 a.m.			
Location: On S. Jackson Avenue facing towards the intersection, behind the Project site, and next to the bus stop.			
Source of Peak Noise: Vehicle traffic on S. Jackson Avenue and Story Road, and activity at the bus stop.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
72.2	49.1	98.6	118.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**6/04/2018**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**5/31/2018**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**6/04/2018**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**5/31/2018**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear with a few clouds.
	Note: dBA Offset = 0.03		**Sensor Height (ft): 4** ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3 mph	63°	

Photo of Measurement Location

Summary

Filename	LxT_Data.097
Serial Number	5120
Model	SoundExpert™ LxT
Firmware Version	2.302
User	
Location	
Job Description	
Note	
Measurement Description	
Start	2019/03/19 11:00:07
Stop	2019/03/19 11:10:07
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2019/03/19 10:53:11
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	C	Z	
Under Range Peak	79.1	76.1	**81.1**	dB
Under Range Limit	**28.1**	26.5	34.1	dB
Noise Floor	17.3	17.3	23.7	dB

Results

LAeq	72.2	dB	
LAE	100.0	dB	
EA	1.108	mPa^2h	
LZpeak (max)	2019/03/19 11:08:56	118.5	dB
LAFmax	2019/03/19 11:08:56	98.6	dB
LAFmin	2019/03/19 11:07:50	49.1	dB
SEA	-99.9	dB	

LAF > 85.0 dB (Exceedence Counts / Duration)	3	5.1	s
LAF > 115.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0	s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**
	72.2	72.2	-99.9	72.2	72.2	-99.9	-99.9

LCeq	79.5	dB
LAeq	72.2	dB
LCeq - LAeq	7.2	dB
LAleq	75.6	dB
LAeq	72.2	dB
LAleq - LAeq	3.4	dB
# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	0	
OBA Overload Duration	0.0	s

Statistics

LAF5.00	73.0	dB
LAF10.00	70.7	dB
LAF33.30	66.2	dB
LAF50.00	63.8	dB
LAF66.60	60.9	dB
LAF90.00	56.1	dB

Site Number: 2			
Recorded By: Rosey Worden			
Job Number: 2018-211			
Date: 3/19/2019			
Time: 11:15 a.m.			
Location: East of the Project site on Story Road facing the intersection and adjacent to residence.			
Source of Peak Noise: Vehicle traffic on S. Jackson Avenue and Story Road, and activity at the gas station.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
65.1	48.7	77.6	98.4

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**6/04/2018**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**5/31/2018**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**6/04/2018**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**5/31/2018**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear with a few clouds.
	Note: dBA Offset = 0.03		**Sensor Height (ft):** 4 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3 mph	63°	

Photo of Measurement Location

Summary				
Filename	LxT_Data.098			
Serial Number	5120			
Model	SoundExpert™ LxT			
Firmware Version	2.302			
User				
Location				
Job Description				
Note				
Measurement Description				
Start	2019/03/19 11:14:41			
Stop	2019/03/19 11:24:41			
Duration	0:10:00.0			
Run Time	0:10:00.0			
Pause	0:00:00.0			
Pre Calibration	2019/03/19 10:53:06			
Post Calibration	None			
Calibration Deviation	---			
Overall Settings				
RMS Weight	A Weighting			
Peak Weight	Z Weighting			
Detector	Fast			
Preamp	PRMLxT1L			
Microphone Correction	Off			
Integration Method	Linear			
OBA Range	Normal			
OBA Bandwidth	1/1 and 1/3			
OBA Freq. Weighting	Z Weighting			
OBA Max Spectrum	Bin Max			
Overload	122.8 dB			
	A	**C**	**Z**	
Under Range Peak	79.1	76.1	**81.1**	dB
Under Range Limit	**28.1**	26.5	34.1	dB
Noise Floor	17.3	17.3	23.7	dB

Results			
LAeq	65.1	dB	
LAE	92.9	dB	
EA	216.966	µPa²h	
LZpeak (max)	2019/03/19 11:20:10	98.4	dB
LAFmax	2019/03/19 11:20:10	77.6	dB
LAFmin	2019/03/19 11:22:58	48.7	dB
SEA	-99.9	dB	
LAF > 85.0 dB (Exceedence Counts / Duration)	0	0.0	s
LAF > 115.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0	s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**
	65.1	65.1	-99.9	65.1	65.1	-99.9	-99.9

LCeq	74.1	dB
LAeq	65.1	dB
LCeq - LAeq	9.0	dB
LAleq	66.5	dB
LAeq	65.1	dB
LAleq - LAeq	1.4	dB
# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	0	
OBA Overload Duration	0.0	s
Statistics		
LAF5.00	71.0	dB
LAF10.00	69.2	dB
LAF33.30	64.1	dB
LAF50.00	61.7	dB
LAF66.60	59.8	dB
LAF90.00	55.1	dB

Site Number: 3			
Recorded By: Rosey Worden			
Job Number: 2018-211			
Date: 3/19/2019			
Time: 11:29 a.m.			
Location: On Story Road across the street from the Project site and next to the KFC.			
Source of Peak Noise: Vehicle traffic on S. Jackson Avenue and Story Road, and aircrafts flying overhead.			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
73.8	51.7	97.3	114.9

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**6/04/2018**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**5/31/2018**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**6/04/2018**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**5/31/2018**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Clear with a few clouds.
	Note: dBA Offset = 0.03		**Sensor Height (ft):** 4 ft
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3 mph	63°	

Photo of Measurement Location

Summary

Filename	LxT_Data.099
Serial Number	5120
Model	SoundExpert™ LxT
Firmware Version	2.302
User	
Location	
Job Description	
Note	
Measurement Description	
Start	2019/03/19 11:28:56
Stop	2019/03/19 11:38:56
Duration	0:10:00.0
Run Time	0:10:00.0
Pause	0:00:00.0
Pre Calibration	2019/03/19 10:53:06
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Fast
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB

	A	**C**	**Z**	
Under Range Peak	79.1	76.1	**81.1**	dB
Under Range Limit	**28.1**	26.5	34.1	dB
Noise Floor	17.3	17.3	23.7	dB

Results

LAeq	73.8	dB	
LAE	101.6	dB	
EA	1.598	mPa^2h	
LZpeak (max)	2019/03/19 11:36:16	114.9	dB
LAFmax	2019/03/19 11:36:17	97.3	dB
LAFmin	2019/03/19 11:31:22	51.7	dB
SEA	-99.9	dB	

LAF > 85.0 dB (Exceedence Counts / Duration)	1	4.2	s
LAF > 115.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 135.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 137.0 dB (Exceedence Counts / Duration)	0	0.0	s
LZpeak > 140.0 dB (Exceedence Counts / Duration)	0	0.0	s

Community Noise	**Ldn**	**LDay 07:00-22:00**	**LNight 22:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-22:00**	**LNight 22:00-07:00**
	73.8	73.8	-99.9	73.8	73.8	-99.9	-99.9

LCeq	80.2	dB
LAeq	73.8	dB
LCeq - LAeq	6.4	dB
LAleq	75.8	dB
LAeq	73.8	dB
LAleq - LAeq	2.0	dB
# Overloads	0	
Overload Duration	0.0	s
# OBA Overloads	0	
OBA Overload Duration	0.0	s

Statistics

LAF5.00	75.9	dB
LAF10.00	74.2	dB
LAF33.30	69.8	dB
LAF50.00	66.8	dB
LAF66.60	63.0	dB
LAF90.00	57.6	dB