Convenience Store, Gas Station and Car Wash – 1705 Berryessa Avenue

San Jose, CA

Extant Project No. 160701.01

September 9, 2016

Prepared for:

AU Energy LLC
41805 Albrae Street
Fremont, CA 94538

1705 Berryessa Avenue

Convenience Store, Gas Station and Car Wash

Environmental Noise Assessment

Extant Report No. 160701.01

September 9, 2016

Prepared for:

A.U. Energy LLC

41805 Albrae Street
Fremont, CA 94538

Prepared by:

Michael Carr, INCE, CTS
Principal Consultant

EXTANT ACOUSTICAL CONSULTING LLC

4220 Duluth Ave., Suite A
Rocklin, CA 95765
T 916.520.4322

Executive Summary

A.U. Energy LLC, with the assistance of MI Architects, Inc., is proposing the reconstruction of an existing Shell gasoline station with additional ancillary uses in San Jose, CA. The project site is located on the west corner of the Berryessa Road and Lundy Avenue intersection, in the City of San Jose, California. The project site address is 1705 Berryessa Road and is bounded by noise-sensitive multi-family residential use along the northwest and southwest property lines. The location of the project site is shown in Figure 1. The proposed site plan and configuration of the proposed project is presented in Figure 2.

The project proposes to construct a new convenience store, in-bay automated car wash and retail location on the existing site. The existing gas station will remain as it is currently situated. The hours of operation for the proposed project were assumed to remain consistent with current 24 hour operations.

Extant Acoustical Consulting LLC (Extant) was retained by the project applicant to perform a noise analysis for the proposed project. In this report, Extant reviews applicable noise standards and criteria, presents the noise monitoring program, evaluates the existing noise environment, and describes modeling assumptions and methodologies used to predict noise emissions due to the proposed project. Findings of the study were evaluated and analyzed against applicable City of San Jose noise standards.

The existing noise levels and observations from the noise monitoring program were used as the basis for modeling of the existing noise environment and evaluation of the potential for project noise levels to effect the existing noise environment. Modeled traffic noise level exposures at noise-sensitive receivers in the project area were predicted to range from approximately 65 to 68 dBA DNL.

Noise levels from the operation of the proposed project are anticipated to range approximately 53 to 54 dBA DNL at the noise prediction receivers, with the incorporation of the prescribed mitigation measures (discussed in Section 5.3). Based on existing noise levels experienced in the vicinity of the project site, project-generated average day-night noise levels are predicted to be at or below ambient noise levels in the majority of the project study area. Moreover, project-generated noise levels are not anticipated to cause a significant increase in the existing noise environment in the project study area.

Based on the assumptions and analysis presented in this report, we conclude the following:

- The predicted average day-night noise levels (DNL) generated from operation of the proposed project are predicted to comply with the City of San Jose exterior noise level standards at noise sensitive receptors in the project vicinity.
- Due to the elevated ambient noise environment in the general vicinity of the project, average day-night noise levels associated with project operations are predicted to be below ambient noise levels currently experienced in the majority project study area.
- Development of the proposed car wash is anticipated to comply with the City of San Jose significant increase criteria as outlined in General Plan Policy EC-1.2.
- Activities associated with the development and operation of the proposed project are predicted to comply with City of San Jose standards for protection of the existing noise environment.

Contents

Tables

Figures

1 Introduction

A.U. Energy LLC, with the assistance of MI Architects, Inc. is proposing the demolition and reconstruction of the existing Shell gasoline station and ancillary uses located at the project site. The proposed project site is located on the west corner of the Berryessa Road and Lundy Avenue intersection, in the City of San Jose, California. The proposed project site is located at 1705 Berryessa Rd. and is bounded by multi-family residential along the northwestern and southwestern property lines, Lundy Ave. on the north, and Berryessa Road on the southeast. The location of the project site is shown in Figure 1. The proposed site plan and configuration of the proposed project is presented in Figure 2.

Extant Acoustical Consulting LLC (Extant) was retained by the project applicant to perform a noise analysis for the car wash included within the proposed project. This report reviews applicable noise standards and criteria, evaluates the existing noise environment, and describes modeling assumptions and methodologies used to predict noise emissions from gas station and car wash operations. Furthermore the report assesses the potential for project-generated noise levels to result in noise impacts on nearby noise-sensitive receptors and land uses. Appendix A provides a description of the various noise metrics and terminology used in this report.

2 Project Description

The proposed project being considered proposes to demolish the existing structure that houses the current car wash equipment room and bathrooms. A new convenience store, automated car wash and retail space would be constructed on the southern portion of the site. The project would also incorporate a queuing lane and mechanical room for the car wash, signage, and landscaping; lastly, the proposed project includes an air and water station at the northern property boundary adjacent to Lundy Ave. Parking for the project would be located adjacent to the convenience store and retail space; with additional parking located along the northern project boundary.

The proposed demolition and reconstruction of the existing Shell Gas Station and Car Wash facility and the proximity of nearby noise-sensitive receptors has prompted the City of San Jose to request an acoustical analysis be prepared to analyze potential noise impacts associated with the proposed project, and more specifically the car wash operations.

3 Environmental Setting

The Project site is generally located in the northwestern portion of the City of San Jose, in the Berryessa area. The land uses surrounding the project site includes a mix of single and multifamily residential, commercial and neighborhood retail uses.

The project area has a number of noise influences, the most dominant being traffic noise. Commercial areas in the general area contribute to the ambient noise level to a lesser extent. The project area experiences occasional aircraft overflights largely associated with the aviation operations of San Jose International Airport; which is located approximately 2.5 miles west.

The residential property boundaries that adjoin the proposed project site currently have an existing noise protection barrier in place along the adjoining property line. The existing property line noise barrier is approximately 5 to 6 feet in height, relative to the existing residential grade.

3.1 Existing Noise Sensitive Land Uses

Noise-sensitive land uses are generally described as those uses where exposure to excessive noise would result in adverse effects, as well as uses where quiet is an essential element of the intended purpose. Residential dwellings are of primary concern due to the potential for increased and prolonged exposure of individuals to excessive interior and exterior noise levels.

Noise-sensitive residential receptors within closest proximity to the project study area include the multifamily residential located along the Project's northwest and southwest property line.

3.2 Existing Ambient Noise Survey

An ambient noise survey was conducted by Extant from July 05, 2016 through July 11, 2016 to document the ambient noise in the vicinity of the existing Shell gas station and car wash located at 1705 Berryessa Road. Long-term unattended ambient noise monitoring was performed at two (2) locations on the project site from July 5th through July 6th. Short-term noise level monitoring was performed at six (6) locations on the project site on July 11th, 2016. Locations of the noise monitoring sites are presented on an aerial photograph of the area on Figure 1. On Figure 1, the long-term noise measurement sites are represented as LT-##; short-term measurement locations are shown as ST-##.

Noise measurements were performed using Larson Davis Laboratories (LDL) Model 831 precision integrating sound level meters (SLMs). Field calibrations were performed on the SLM with an acoustic calibrator before and after the measurements. Equipment meets all pertinent specifications of ANSI S1.4-1983 (R2006) for Type 1 SLMs. All instrumentation components, including microphones, preamplifiers and field calibrators have laboratory certified calibrations traceable to the National Institute of Standards and Technology (NIST). The microphones were located at a minimum height of 5-6 ft. above the ground, an average height for a person standing, and located a sufficient distance away from reflective surfaces in the monitoring area. Noise measurements were performed in accordance with American National Standards Institute (ANSI) and American Standards for Testing and Measurement (ASTM) guidelines.

The noise monitoring equipment was configured to catalog all noise metrics pertinent to identification and evaluation of noise levels (i.e., Leq, Lmax, Ln, etc.) in the study area. Monitoring data was collected for the overall measurement period and each hourly period.

The following sections discuss the overall monitoring results for the long-term and short-term measurements.

3.2.1 Long-Term Monitoring

Long-term noise monitoring data collected during the noise monitoring program serves to establish a baseline for ambient noise levels in the project vicinity. Additionally, the noise levels cataloged illustrate the dinural pattern experienced at the site; and allow for correlation of hourly noise levels collected at the short-term monitoring locations with the 24-hour day-night noise levels. Long-term noise monitoring was conducted from July 05, 2106 through July 06, 2016 at two locations on the project site.

During the long-term monitoring, the primary background noise source affecting the monitoring location was vehicular traffic on the local roadway network (Lundy Ave. and Berryessa Rd.) and the existing car wash operations on the project site. Additional noise sources experienced during the long-term noise monitoring period included aircraft over-flights, emergency vehicle pass-bys and general community noise in the residential neighborhood.

Ambient noise level exposure at the monitoring location was fairly dependent on the relative distance from nearby transportation noise sources and the existing car wash.

Noise monitoring data is summarized below Table 1 for the long-term noise monitoring location in; with detailed noise level data provided in tabular and graph form in Appendix B. The average day-night (DNL) noise level measured during the long-term ambient noise monitoring survey ranged from approximately 65 to 68 dBA DNL. Maximum hourly noise levels (Lmax) documented during the long-term monitoring ranged from approximately 62 to 93 dBA Lmax, with average daytime and nighttime levels from approximately 79 to 82 and 69 to 78 dBA Lmax, respectively.

Table 1 – Summary of Long-Term Noise Monitoring

				Average Hourly Noise Levels, dBA							
				Daytime				Nighttime			
Site	Description[1]	Date	DNL	Leq	Lmax	L50	L90	Leq	Lmax	L50	L90
LT-01	Western area of project site. Adjacent to 1681 River Birch Ct.	07/05/16 to 07/06/16	65.0	65.0	78.9	59.9	55.0	55.0	68.7	47.7	44.6
LT-02	Southern area of project site. Adjacent to 1680 River Birch Ct.	07/05/16 to 07/06/16	67.9	66.2	82.4	61.2	54.2	59.7	77.6	51.1	44.8

Notes: dBA = A-weighted decibels; DNL = 24-hour day-night noise level; Leq = equivalent average noise level; Lmax = maximum noise level; L50 = sound level exceeded 50% of the hour; L90 = sound level exceeded 90% of the hour, typically represents the background noise level.
1 – Measurement locations are provided in Figure 1 as an overlay on an aerial photograph.
Source: Extant Acoustical Consulting LLC, 2016

3.2.2 Short-Term Noise Monitoring

Short-term attended monitoring was performed by Extant staff at six (6) locations on the project site on July 11, 2016. Detailed observations about the measurement environment, existing noise sources, and other elements with the potential to effect the measurement or the Project were documented throughout the monitoring program. Short-term monitoring locations are depicted on Figure 1.

Monitoring sites ST-01 though ST-03 were located along the adjoining residential property lines to provide additional information on existing noise level exposure at the property lines. Monitoring sites ST-04 and ST-05 were positioned at the entrance and exit of the existing car wash. ST-05 and ST-05 provide additional information about noise levels generated by the existing car wash and provide correlation with long-term monitoring data. Monitoring site ST-06 was located adjacent to existing fueling operations to evaluated noise levels generated by gasoline station operations.

Noise experienced at the short-term monitoring locations ST-01 through ST-03 was predominately due to vehicular traffic on the local roadway network and noise from the existing car wash. Noise levels observed at ST-04 through ST-06 were used to characterize existing source noise levels occurring on the project site.

Overall noise levels measured at the short-term environmental noise monitoring locations ranged from approximately 60 to 71 dBA Leq. Maximum noise levels documented during the monitoring survey ranged from approximately 71 to 88 dBA Lmax. Noise level exposure was directly dependent on the distance of the monitoring location from surrounding traffic noise

sources. Table 2 presents the overall monitoring results for each of the short-term monitoring locations, along with some general notes from each site.

Table 2 – Summary of Short-Term Noise Monitoring

Site	Description[1]	Start Time	Average Noise Levels (dBA) Leq	Lmax	L50	L90	Notes/Sources
Environmental Noise Measurements							
ST-01	Southern Corner of Project Site - Berryessa Rd Traffic	4:30 PM	70.9	88.3	67.2	66.8	Traffic calibration measurement.
ST-02	Adjacent to 1740 River Birch Drive Property Line.	5:15 PM	60.3	71.3	59.0	58.7	Traffic on Lundy and Berryessa, car wash and gas station operations.
ST-03	Adjacent to 1746 River Birch Drive Property Line.	5:15 PM	62.2	71.2	59.4	59.1	Traffic on Lundy and Berryessa, gas station operations.
Source Noise Measurements							
ST-04	Car Wash Entrance (20 ft. from tunnel opening)	5:01 PM	73.6	83.9	69.8	69.5	Car wash noise.
ST-05	Car Wash Entrance (20 ft. from tunnel opening)	5:01 PM	80.2	88.5	73.3	73.1	Car wash noise.
ST-06	Gas Station Operations (10-15 ft. from sources)	5:27 PM	61.0	75.4	59.7	59.2	On-site operations at the gas station.
		5:37 PM	61.2	75.2	60.0	59.7	

Notes: dB = A-weighted decibels; Leq = equivalent average noise level; Lmax = maximum noise level; L50 = sound level exceeded 50% of the period; L90 = sound level exceeded 90% of the hour, typically represents the background noise level.
1 – Measurement locations are provided in Figure 1 as an overlay on an aerial photograph.
Source: Extant Acoustical Consulting LLC, 2016

3.2.3 Existing Traffic Noise

Existing traffic noise levels were modeled for roadway segments in the project vicinity based on the Federal Highway Administration (FHWA) Highway Traffic Noise Model (TNM) Version 2.5® prediction methodologies, and traffic data for project area roadways from the traffic impact analysis prepared for the City of San Jose Envision 2040 EIR (City of San Jose 2008). The FHWA TNM incorporates state-of-the-art sound emissions and sound propagation algorithms, based on well-established theory and accepted international standards. The acoustical algorithms contained within the FHWA TNM have been validated with respect to carefully conducted noise measurement programs, and show excellent agreement in most cases for sites with and without noise barriers (FHWA 1998).

Noise modeling for the project was performed through the application of established assessment methodologies and algorithms to propagate noise levels into the surrounding community (e.g., traffic noise via FHWA TNM 2.5) within the SoundPLAN noise modeling program. The model incorporated a three-dimensional geometric model of the study area developed from digital terrain information, available GIS information, aerial photography and information provided by the project team. The noise modeling accounted for factors as vehicle volume, speed, vehicle type, roadway configuration, distance to the receiver, and propagation over different types of ground (acoustically soft and hard ground). In order to ensure that modeled existing traffic noise levels correlate with measured traffic noise levels, observations and data collected during short-term noise monitoring was used to calibrate the traffic model.

Modeled traffic noise levels were found to be reasonably consistent with traffic noise measurements conducted at the project site, under-predicting traffic noise levels by approximately 0 to 1.5 dB. This would result in an over-estimation of the effect of the Project on the existing environment. As this would result in a conservative analysis, calibration offsets were not applied to the model.

Noise prediction receivers were placed within the noise model, representing noise-sensitive receptors (i.e., single family residences, multi-family residential, outdoor activity areas, schools, etc.), locations of key interest, and the locations of the noise monitoring sites used during the field survey. Modeled traffic noise exposure levels at nearby noise-sensitive receivers in the immediate project vicinity are shown in Table 3. Equal level noise contours for the modeled existing traffic conditions in the project area are presented graphically in Figure 1. As shown in Table 3, modeled traffic noise level exposures at noise-sensitive receivers in the project area range from approximately 63 to 67 dBA DNL.

Table 3 – Modeled Existing Traffic Noise Levels

Site	Location	Noise Level Exposure (DNL, dBA)
P-01	Northern property line adjacent to 1752 River Birch Drive.	65
P-02	Northern property line adjacent to 1748 River Birch Drive.	64
P-03	Northwestern property line adjacent to 1742 River Birch Drive.	64
P-04	Western property line adjacent to 1738 River Birch Drive.	64
P-05	Southwestern property line adjacent to 1681 River Birch Court	63
P-06	Southwestern property line adjacent to 1680 River Birch Court	67

Notes: dBA = A-weighted decibels; DNL = Day Night noise level.
Locations of noise monitoring sites and noise prediction receivers with modeled existing traffic noise level contours are shown on Figure 1.
Source: Extant Acoustical Consulting LLC, 2016

4 Regulatory Criteria

Standards and guidelines for addressing noise exposure within the City of San Jose are contained primarily in the City of San Jose General Plan, with additional guidelines found in the City of San Jose Municipal Code.

4.1 City of San Jose General Plan

The General Plan Noise Element establishes objectives, policies, and actions to protect its inhabitants against exposure of noise-sensitive uses to loud noise and to prevent encroachment of noise-sensitive uses on existing noise producing facilities.

The General Plan establishes exterior noise level standards and maximum allowable noise exposure levels at noise-sensitive land uses, which are considered "normally acceptable", and represented below in Table 4 (Section EC-1.1 and Table EC-1 of the City of San Jose General Plan). The noise level guidelines are presented in terms of the 24-hour CNEL or DNL noise level in dBA. The intent of these guidelines is to affect new project development through the discretionary review process to reduce potential noise exposure and excessive noise within the community.

As outlined in policy EC-1.2, the General Plan seeks to minimize noise impacts of new development on existing noise-sensitive receptors by limiting the effect a project may have on the existing ambient noise environment. A project is considered to cause a significant noise impact if the DNL at noise-sensitive receptors would increase by 5 dBA or more, where ambient noise levels would remain "Normally Acceptable" (60 dBA DNL); or if a project would result in an increase of 3 dBA or more, where noise levels would equal or exceed the "Normally Acceptable" level (60 dBA DNL).

Policy EC-1.3 of the General Plan limits noise generation for new non-residential land uses which are adjacent to residential land uses, to 55 dBA DNL at the residential property line.

The effects of operational noise are discussed briefly in General Plan Policy EC-1.6, which prescribes regulation of commercial and industrial operational noise levels through application of the City's Municipal Code. The Municipal Code standards are discussed in the following section.

The General Plan provides guidelines for construction operations within Policy EC-1.7, requiring construction operations within San Jose to use best available noise suppression devices and techniques; and limit construction hours near residential uses per the City's Municipal Code.

Policy EC-1.8 of the General Plan states that commercial drive-thru uses will only be allowed "when consistency with the City's exterior noise level guidelines and compatibility with adjacent land uses can be demonstrated."

Table 4 – Land Use Compatibility Guidelines in San Jose
(City of San Jose General Plan Noise Element, Table EC-1)

Land Use Category	Exterior Noise Exposure (DNL in Decibels (dBA)) 55 60 65 70 75 80
1. Residential, Hotels and Motels, Hospitals and Residential Care[1]	
2. Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	
3. Schools, Libraries, Churches, Hospitals, Nursing Homes	
4. Office Buildings – Business, Commercial & Professional	
5. Sports Area, Outdoor Spectator Sports	
6. Public and Quasi-Public Auditoriums, Concert Halls, Amphitheaters	

[1] Noise mitigation to reduce interior noise levels pursuant to Policy EC-1.1 is required.

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 needed noise insulation 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.

Source: City of San Jose General Plan

4.2 The City of San Jose Municipal Code

The City of San Jose Municipal Code addresses and provides a means for protection of the citizens of San Jose through both qualitative and quantitative provisions and prohibitions. The primary purpose of the Code is intended to promote and secure the public health, comfort, safety, welfare and prosperity, and the peace and quiet of the city and its inhabitants. The Code serves as an implementation method for the General Plan and enforcement element for establishing the desired character of the City.

The City of San Jose Zoning Maps designates the parcel where the existing Shell station is located as Agricultural-Planned Development (A [PD]). Is our understanding that a request is been submitted for a zoning change of the project parcel to Commercial Neighborhood (CN). The adjoining parcels along the northwestern and southwestern project boundaries are also zoned as Agricultural-Planned Development (A [PD]). However, the surrounding parcels are currently developed and in use as multifamily residential.

The Municipal Code establishes in Section 20.20.300 that for Agricultural Zoning Districts "*The sound pressure level generated by any use or combination of uses on a property shall not exceed the decibel levels indicated in Table 20-45 at any property line, except upon issuance and in compliance with a conditional use permit as provided in Chapter 20.100.*" Table 20-45 establishes a maximum noise level of 55 dB for agricultural use adjacent to a property used or

zoned for residential purposes; 60 dB for agricultural use adjacent to a property used or zoned for commercial or other non-residential purposes; and, 70 dB for agricultural use adjacent to a property used or zoned for industrial or use other than commercial or residential purposes.

Likewise, the Municipal Code establishes 55 dB and 60 dB maximum noise level standards for commercial zoning districts adjacent to residential and commercial uses (Section 20.40.600, Table 20-105).

The project must therefore abide by the more restrictive 55 dB maximum noise level at the property line as outlined in sections 20.20.300 and 20.40.600, or pursue the issuance of a special use permit establishing project specific criteria.

5 Project Noise Analysis

As stated in the introduction, the project under consideration proposes to demolish the existing buildings on the project site and construct a new convenience store, an in-bay automated car wash and retail location. Noise sources associated with the operation of the proposed project would include people accessing the site for fueling or shopping, and operations of the automated car wash. Operations of the car wash, discussed further below, would constitute the loudest noise level generation associated with the Project. Because of this and the proximity of the car wash to the nearby noise-sensitive land uses, the car wash is the focus of this analysis.

5.1 Car Wash Operation Noise Levels

Automated car wash equipment and facilities have several potential noise generating sources associated with their general operation; including pumps, compressors, high-pressure applicators and spray nozzles, scrubbers, and dryers. The car wash mechanical equipment (pumps, compressors, etc.) can generate a substantial amount of noise; however, the majority of the mechanical equipment is proposed to be fully enclosed within a mechanical equipment room, inside the car wash tunnel. Potential noise sources not enclosed within the equipment room would include the high-pressure applicators and spray nozzle manifolds; noise from the friction of the scrubber, wrap and brush wash systems; and noise generated from the dryer system. The dryers however, are the dominate noise source associated with car wash systems; therefore, this analysis will examine car wash-generated noise levels through evaluation of sound levels generated by the dominant noise source, the dryer system. Additional noise generated from ancillary support equipment is included in the analysis of overall project noise levels.

The proposed car wash will include the use of a Ryko 3-Fan SlimLine dryer system with incorporated Ryko Quiet-Kit silencer. The Ryko 3-Fan SlimLine dryer is a stationary, stand-alone drying system, using one (3) blower motors to directly deliver air. The car wash dryer manufacturer (Ryko) provided reference sound level data for the dryer in the form of sound pressure levels at varying distances. The manufacturer sound level data is provided as a reference in Appendix C. The supplied reference sound level data and operational characteristics for the equipment were used to calculate sound power levels (LwA)[1] for the dryer.

The manufacturer reference source noise levels are based upon the noise level generated during continuous operation of the dryers, within a drying cycle. Based on the source characterization measurements performed at the existing car wash, typical car wash drying cycles lasted between

[1] The Sound Power Level represents the total sound energy produced by the source under the specified operating conditions. Sound Power Levels cannot be measured directly; instead they are computed from reference sound pressure level measurements, such as those conducted by the manufacturer.

60- and 120-seconds for each car wash, with a typical duration of 82 seconds. During the monitoring, the existing car wash completed approximately 135 car wash cycles per 24-hour period. The drying cycle of the proposed project was assumed to have an average duration of 90 seconds. Car wash operations were assumed to be consistent with the current utilization of approximately 135 car wash cycles per day.

Operational and temporal assumptions outlined above along with the calculated sound power levels were used as inputs to the SoundPLAN noise prediction model. Modeled noise levels generated from the operation of the proposed car wash at the representative noise prediction receiver locations are presented in Table 5.

As shown in Table 5, noise levels generated from the proposed car wash dryers are anticipated to range from approximately 47 to 69 dBA DNL, at the prediction receivers representing the adjoining property lines. Therefore, project noise levels are predicted to exceed City of San Jose 55 dBA noise level standards and mitigation will be necessary to achieve compliance with the applicable criteria.

5.2 Additional On-Site Operational Noise Levels

Additional on-site noise levels, not associated with the car wash, may be generated by the proposed project may include those produced by operations of the gas station, vacuum, air/water stations and people accessing the convenience store or retail location. Reference noise level data for the vacuums were provided by the applicant. Noise levels generated by gas station operations, air/water stations, and people accessing the project site were evaluated based on empirical data, as well as data collected at the existing gas station operation.

5.2.1 Vacuum Stations

The proposed project includes the addition of two vacuum stations; located along the northeastern property line, adjacent to the Lundy Ave. ROW. Reference noise level data provided by the applicant indicates operational noise levels of approximately 68 dBA at a distance of 20 feet. In addition to noise generated by the vacuum motor itself, supplemental noise sources associated with the use of the vacuum stations were included in the noise simulation model. Supplemental noise sources included with each vacuum station "event" included on-site traffic accessing the vacuum stations, parking operations, and ancillary activities like doors opening and closing, floor mats being brushed and beaten, patrons conversing, etc.

Empirical observations and data have shown vacuum stations to operate one (1) to three (3) cycles per hour, during normal daytime operations. As such, each of the two (2) vacuum stations was conservatively anticipated to operate three (3) cycles per hour, between 7:00 AM and 10:00 PM (standard "daytime" time periods).

5.2.2 Gas Station Convenience Store and Retail Operations

The primary noise sources associated with the proposed gas station, convenience store and retail operations would be caused by patrons and vehicles accessing the project site, and occasionally, heavy trucks delivering fuel and merchandise. As patrons access the site, the noise generating activities can be generally lumped into "events". Activities making up a single-event would include the vehicle arrival, limited idling of the vehicle, occupants exiting the vehicle, door closure, conversations among passengers, occupants entering the vehicle, vehicle startup and departure.

To quantify these events, Extant conducted reference noise level measurements of filling station and parking activities. Sound level data for gasoline fueling events was gathered to determine the sound exposure levels (SEL) associated with a single filling/parking event. The single-event SELs measured at the existing filling station correlate well with empirical data for similar activities and indicate an average single-event SEL of approximately 71 dB SEL at a distance of 50 feet.

Based on ITE Trip Generation vehicle rates, the gasoline station and convenience store operations were assumed to have 10.2 trips per vehicle fueling position during AM peak hour conditions and 13.4 trips per vehicle fueling position per-hour, during PM peak hour operations. These rates were established based on ITE studies of gas station activities across the country. Applying these peak hour rates across a 24-hour period overstates the trips occurring during hours other than the peak hour; and as such, would be considered conservative. As before, the SoundPLAN noise prediction model developed for the project was employed.

Also incorporated in to the modeling of gas station operations is the noise generated by the air/water stations and general parking activities across the project site. The modeled noise levels for the car wash, additional operations, and overall project noise are presented below in Table 5.

Overall project noise levels are anticipated to range from approximately 54 to 69 dBA DNL at the adjoining property boundaries, with the existing noise barrier remaining in place. This would result in an exceedance of the City of San Jose General Plan noise standards in the western portion of the project site (P-04), and along the southeastern property boundary (P-05 and P-06). As such, additional mitigation is required to achieve compliance with the City of San Jose noise standards; and is discussed below.

Table 5 – Modeled Car Wash Noise Levels – Existing Noise Barrier

Site	Location	Noise Level Exposure (dBA, DNL)		
		Car Wash	Additional Operations[1]	Overall Project
P-01	Northern property line - 1752 River Birch Drive.	47	53	54
P-02	Northern property line - 1748 River Birch Drive.	45	53	54
P-03	Northwestern property line - 1742 River Birch Drive.	55	52	57
P-04	Western property line - 1738 River Birch Drive.	61	46	61
P-05	Southwestern property line - 1681 River Birch Court	69	42	69
P-06	Southwestern property line - 1680 River Birch Court	69	40	69

Notes: dBA = A-weighted decibels; DNL = Day Night noise level.
1- Incorporates all other ancillary operations associated with the proposed project; gas station, convenience store, retail store, vacuums, air/water stations, and additional parking.
Source: Extant Acoustical Consulting LLC, 2016

5.3 Mitigation

Extant Acoustical further employed the three-dimensional computerized noise simulation model developed for the project to evaluate various noise reduction strategies and mitigation measures. In addition to the Ryko Quiet Kit noise reduction package, the mitigation analysis indicated that with the installation of an acoustical baffle at the exit of the car wash tunnel and modifications to the existing property line noise barrier wall height, the proposed project is anticipated to achieve compliance with the City of San Jose noise criteria. Noise levels generated by the proposed project, with the mitigation measures incorporated, are provided in Table 6.

The acoustical baffle would be installed immediately adjacent to the car wash dryer motors, within the car was tunnel. The lower edge of the baffle should be consistent with the clearance height of the car wash gantry and dryers (typically 84-inches) and extend vertically, overlapping the upper edge of the car wash exit opening. The baffle must have a minimum absorption rating of NRC 0.9 and Sound Transmission Class (STC) rating of 27 or greater.

Property line noise barrier heights were evaluated based on the existing ground elevation under the existing noise barrier. However, to avoid uncertainty the minimum height of the required noise barrier is specified with top-of-wall (TOW) elevations. The required TOW elevations are provided, based on the reference elevation of the proposed car wash (87.5 feet) and the pad elevation of nearby noise-sensitive receptors. The minimum required noise barrier is illustrated on Figure 2.

The noise barrier can be constructed of concrete masonry units (CMU), engineered noise barrier panels or other materials, providing that the assembly has a mass greater than 3 lbs./sq.-ft. and an STC rating greater than 27. Alternate barrier materials must create a solid, impervious barrier, free from voids and the material meets or exceeds the above specifications.

As shown below in Table 6, overall project noise levels are predicted to range from 53 to 54 dBA DNL at the adjoining property boundaries, following the incorporation of the prescribed mitigation measures. Therefore, the proposed project is anticipated to comply with the City of San Jose 55 dBA noise level standard, with mitigation incorporated.

Table 6 – Modeled Car Wash Noise Levels – with Mitigation

Site	Location	Noise Level Exposure (dBA, DNL)		
		Car Wash	Additional Operations[1]	Overall Project
P-01	Northern property line - 1752 River Birch Drive.	45	53	53
P-02	Northern property line - 1748 River Birch Drive.	42	53	54
P-03	Northwestern property line - 1742 River Birch Drive.	48	51	53
P-04	Western property line - 1738 River Birch Drive.	52	43	53
P-05	Southwestern property line - 1681 River Birch Court	54	38	54
P-06	Southwestern property line - 1680 River Birch Court	53	42	53

Notes: dBA = A-weighted decibels; DNL = Day Night noise level.
Locations of receivers and car wash noise levels are illustrated on Figure 3. Overall Project noise levels are shown on Figure 4.
1- Incorporates all other ancillary operations associated with the proposed project; gas station, convenience store, retail store, vacuums, air/water stations, and additional parking.
Source: Extant Acoustical Consulting LLC, 2016

5.4 Effect on Existing Environment

As outlined, the City of San Jose General Plan establishes policy to limit the effect of new projects on the existing ambient noise environment. Existing traffic noise exposure levels, as previously presented, serve as the basis for evaluating the potential for the proposed project to result in increased noise levels. Incorporating existing traffic volumes on the local and regional roadway network into the noise simulation model for the overall project operations and comparing the resulting noise levels to those of the existing environment, the project-related effect on the existing noise environment was determined. Modeled noise levels for the existing condition, project noise levels, and combined existing plus project noise levels are presented in Table 6.

Existing noise levels in the project area are illustrated on Figure 1. The existing noise environment, with the implementation of the proposed project is shown in Figure 5. The relative change caused by implementation of the proposed project is shown as a difference map in Figure 6.

As shown Table 6, the project-related effects on the existing ambient noise environment were calculated to result in less than 1 dBA change from existing levels at prediction locations P-01 and P-02. Additionally, noise prediction receivers P-03 through P-06, are calculated to benefit from the reduction of traffic noise level exposure. This traffic noise level reduction is due to the project site design and the inclusion of the modified property-line noise barrier as part of the project mitigation. Based on this analysis, project-generated noise levels are not predicted to result in an increase of 3 dBA or more in the existing noise environment, as set forth in Policy EC-1.2 of the City of San Jose General Plan. Therefore, the proposed project is predicted to comply with the City of San Jose General Plan existing ambient effect noise standards.

Table 7 – Modeled Project Noise Level Effect

		Modeled Noise Level Exposure (DNL, dBA)				
Site	Location	Existing Traffic[1]	Overall Project[2]	Existing Plus Project[3]	Effect on Ambient[4,5]	Impact
P-01	Northern property line - 1752 River Birch Drive.	65	53	65	< 1	No
P-02	Northern property line - 1748 River Birch Drive.	64	54	65	< 1	No
P-03	Northwestern property line - 1742 River Birch Drive.	64	53	62	-2	No
P-04	Western property line - 1738 River Birch Drive.	64	53	60	-4	No
P-05	Southwestern property line - 1681 River Birch Court	63	54	58	-5	No
P-06	Southwestern property line - 1680 River Birch Court	67	53	65	-2	No

Notes: dBA = A-weighted decibels; DNL = Day Night noise level.
1. Existing traffic noise level contours are shown on Figure 1.
2. Overall project noise level contours are shown on Figure 4.
3. Existing traffic noise level Plus project noise levels are shown on Figure 5.
4. The effect of the project on the existing ambient noise environment is shown on Figure 6.
5. Negative noise effect on the ambient would be the result of the additional shielding provided by the proposed project and associated mitigation measures.

Source: Extant Acoustical Consulting LLC, 2016

6 Conclusion

Extant Acoustical Consulting (Extant) has completed a noise assessment for the proposed Convenience Store, Gas Station, Car Wash and Retail project; located at 1705 Berryessa Road in San Jose, California. The project is proposed to be located at the site of an existing Shell gas station and car wash, at the intersection of Lundy Avenue and Berryessa Road; in the Berryessa area of northeastern San Jose. The project site is bounded by multi-family residential along the northwest and southwest property lines, Lundy Ave. on the northeast, and Berryessa Rd. on the southeast. Additional commercial uses are located across Lundy Ave. and Berryessa Rd. The project proposes to construct a new convenience store, and in-bay automated car wash and retail store on the project site. The hours of operation for the proposed project are assumed to remain consistent with existing 24-hour operations.

The analysis summarized the existing noise environment, presented the noise levels that are predicted to be generated by the proposed project site, and compared the resultant noise levels with applicable City of San Jose noise standards. Mitigation measures to help ensure project compliance with the City of San Jose noise criteria were evaluated and recommended.

With the incorporation of the prescribed mitigation measures, project noise levels are anticipated to range approximately 53 to 54 dBA DNL, at the prediction receivers representing the surrounding noise sensitive land uses. Based on the analysis presented and the incorporation of appropriate mitigation, the predicted average day-night noise levels (DNL) generated from the operation of the proposed project are predicted to comply with the City of San Jose 60 dBA DNL exterior noise level standards set forth in Table EC-1 of the City of San Jose General Plan (normally acceptable criteria for residences). Project noise levels are also predicted to comply with the 55 dBA noise level standard for new non-residential uses/commercial uses affecting residential land uses as established in the City of San Jose General Plan Policy EC-1.3 and the Municipal Code.

Based on existing noise levels experienced in the vicinity of the project site, project-generated average day-night noise levels are predicted to be at or below ambient noise levels in the majority of the project study area. Noise levels generated from the proposed project were predicted to result in less than a 1 dBA increase in the existing noise environment at noise-sensitive receivers in the project study area. Additionally, portions of the study area in the immediate vicinity of the project are predicted to benefit from reduced traffic noise levels due to the property-line sound wall incorporated into the project design. Project-generated noise levels are not predicted to exceed the existing noise environment protection criteria; causing an increase of 3 dBA or more in the existing noise environment, as set forth in Policy EC-1.2 of the City of San Jose General Plan.

Development and operation of the proposed Convenience Store, Gas Station, Car Wash and Retail Location at 1705 Berryessa Road is anticipated to comply with the applicable City of San Jose noise standards.

Path:N:\PROJECTS\160701.01_AU Energy_1705 Berryessa Rd\5-_GIS\Fig_01_Project Loc_rotated.mxd

Data Source: Extant Acoustical Consulting 2016, OpenStreetMap, Google.

Legend

Project Site
Building

Receiver Type
Long-Term Monitor
Short-Term Monitor
Prediction Receiver

Noise Level, dBA
45.0
50.0
55.0
60.0
65.0
70.0

Figure 1

Proposed Project Location

Noise Monitoring Locations
Existing Noise Levels, dBA DNL

AU Energy
Shell Gas Station & Car Wash
1705 Berryessa Road
San Jose, California

EXTANT ACOUSTICAL CONSULTING LLC

Date: 09/09/2016 Author: MJC

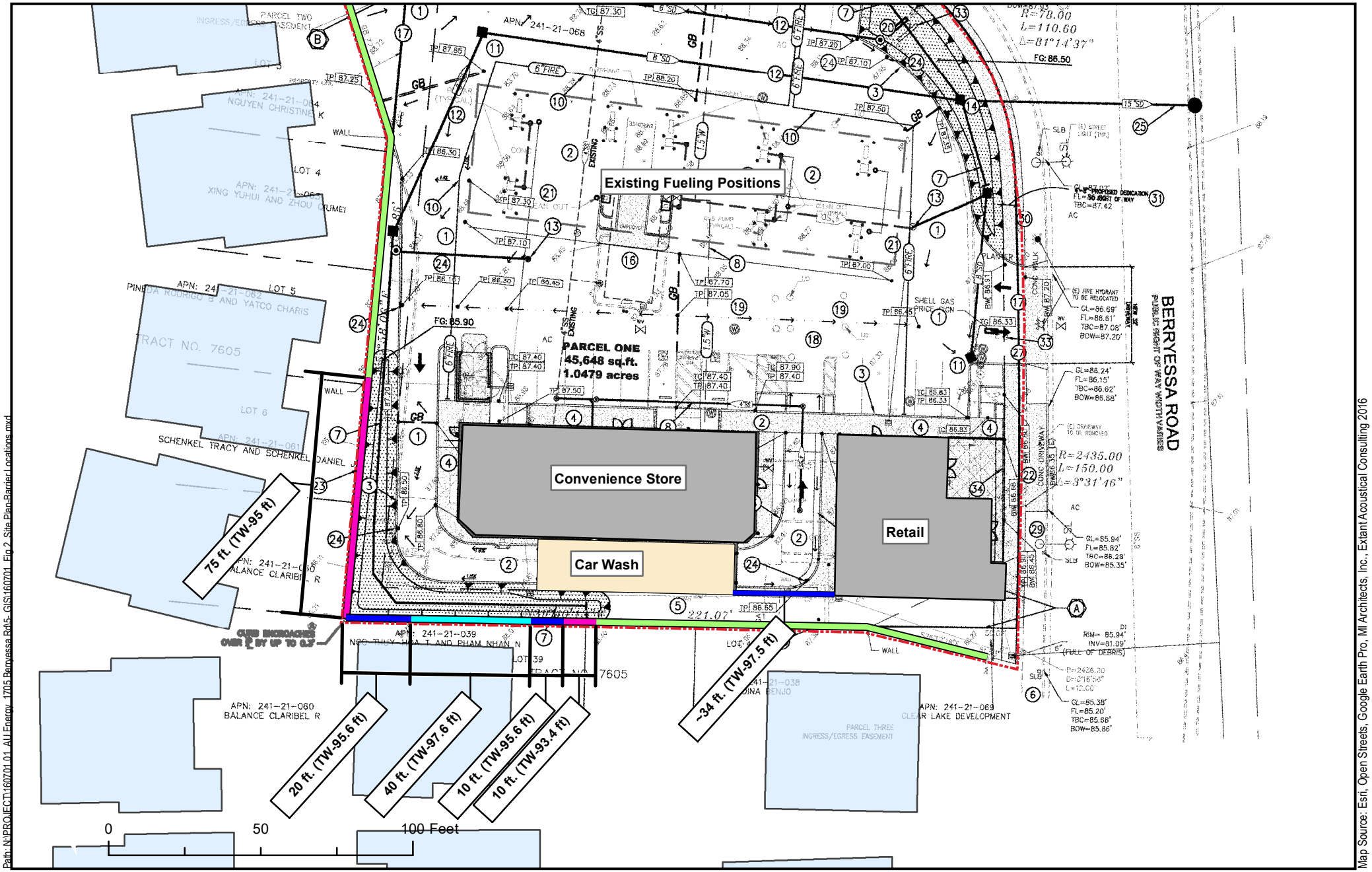


Figure 2

Project Site Plan

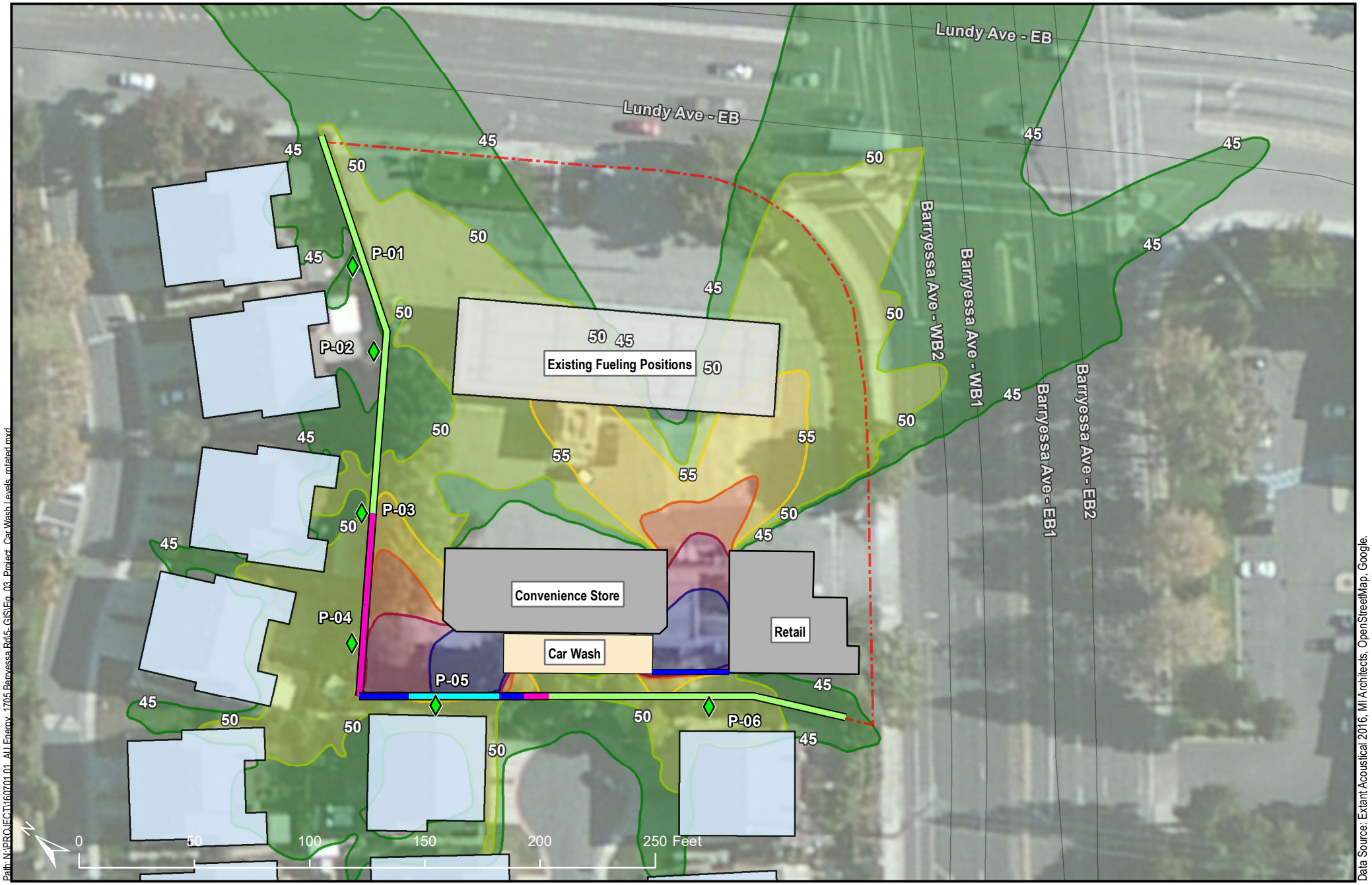
Recommended Mitigation

Ryko 3-fan Slimline with Quiet Kit and Acoustic Header.
Noise Protection Walls as Illustrated. Top of Wall Elevation in Call-Out.

Shell Station
A.U. Energy
1705 Berryessa Rd.
San Jose, CA

EXTANT ACOUSTICAL CONSULTING LLC

Date: 09/09/2016 Author: MJC



Legend

- Existing Residential
- Prediction Reciever
- Project Site
- Project Buildings

Noise Level, dBA DNL
- 45.0
- 50.0
- 55.0
- 60.0
- 65.0
- 70.0

Relative Wall Height, Feet
- Existing
- 8
- 10
- 12

Figure 3

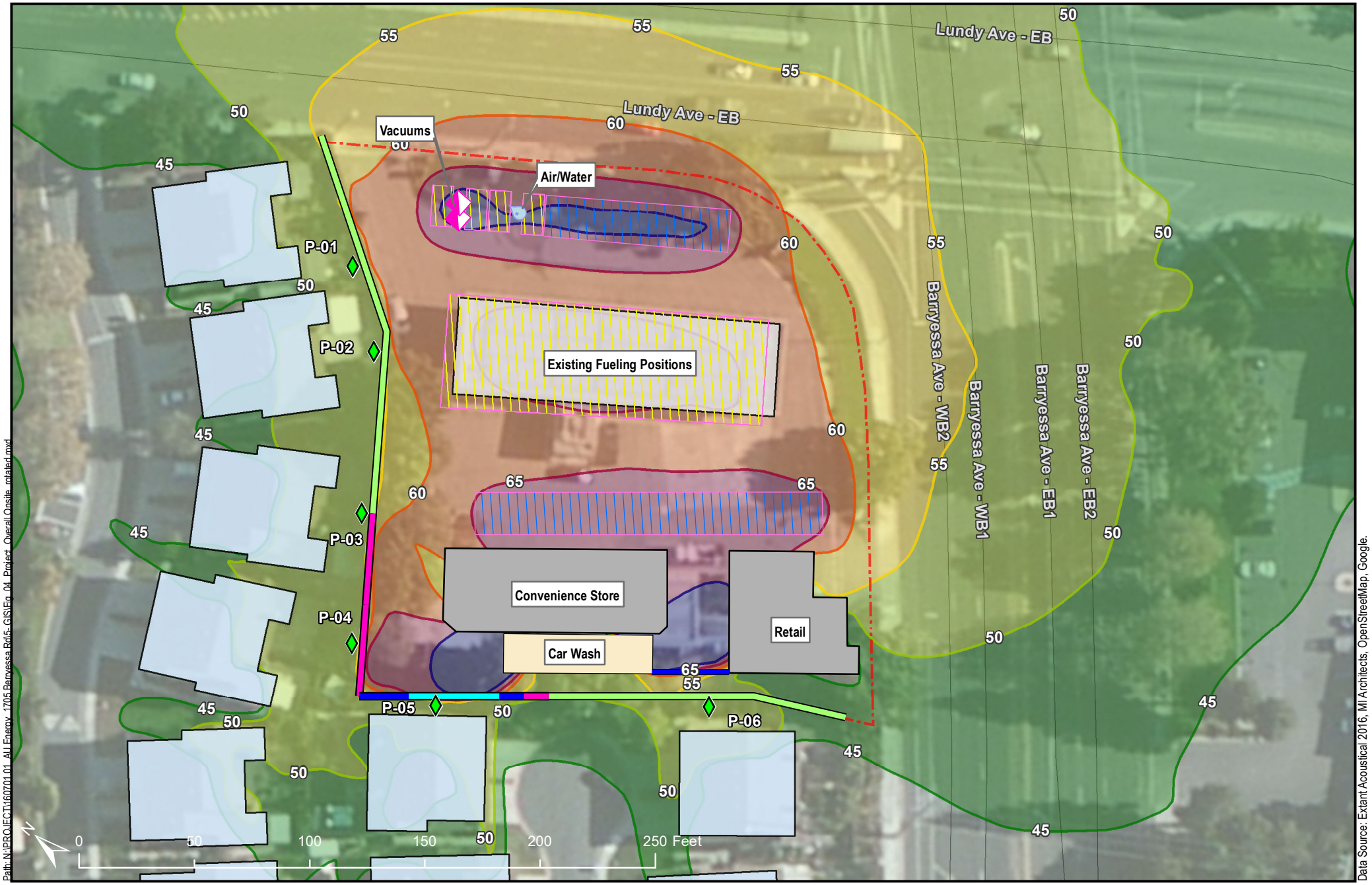
Modeled Car Wash Noise Levels

Day-Night Level, dBA DNL
With Mitigation Incorporated

AU Energy
Shell Gas Station & Car Wash
1705 Berryessa Road
San Jose, California

EXTANT ACOUSTICAL CONSULTING LLC

Date: 09/09/2016 Author: MJC



Legend

- Existing Residential
- Prediction Reciever
- Project Site
- Project Buildings

Noise Level, dBA DNL
- 45.0
- 50.0
- 55.0
- 60.0
- 65.0
- 70.0

Relative Wall Height, Feet
- Existing
- 8
- 10
- 12

Figure 4

Modeled Overall Onsite Noise Levels

Day-Night Level, dBA DNL
With Mitigation Incorporated
(Convenience store, gas station, car wash, retial and ancillary sources.)

AU Energy
Shell Gas Station & Car Wash
1705 Berryessa Road
San Jose, California

EXTANT ACOUSTICAL CONSULTING LLC

Date: 09/12/2016 Author: MJC

Legend

- Existing Residential
- Prediction Reciever
- Project Site
- Project Buildings

Noise Level, dBA DNL
- 45.0
- 50.0
- 55.0
- 60.0
- 65.0
- 70.0

Relative Wall Height, Feet
- Existing
- 8
- 10
- 12

Figure 5

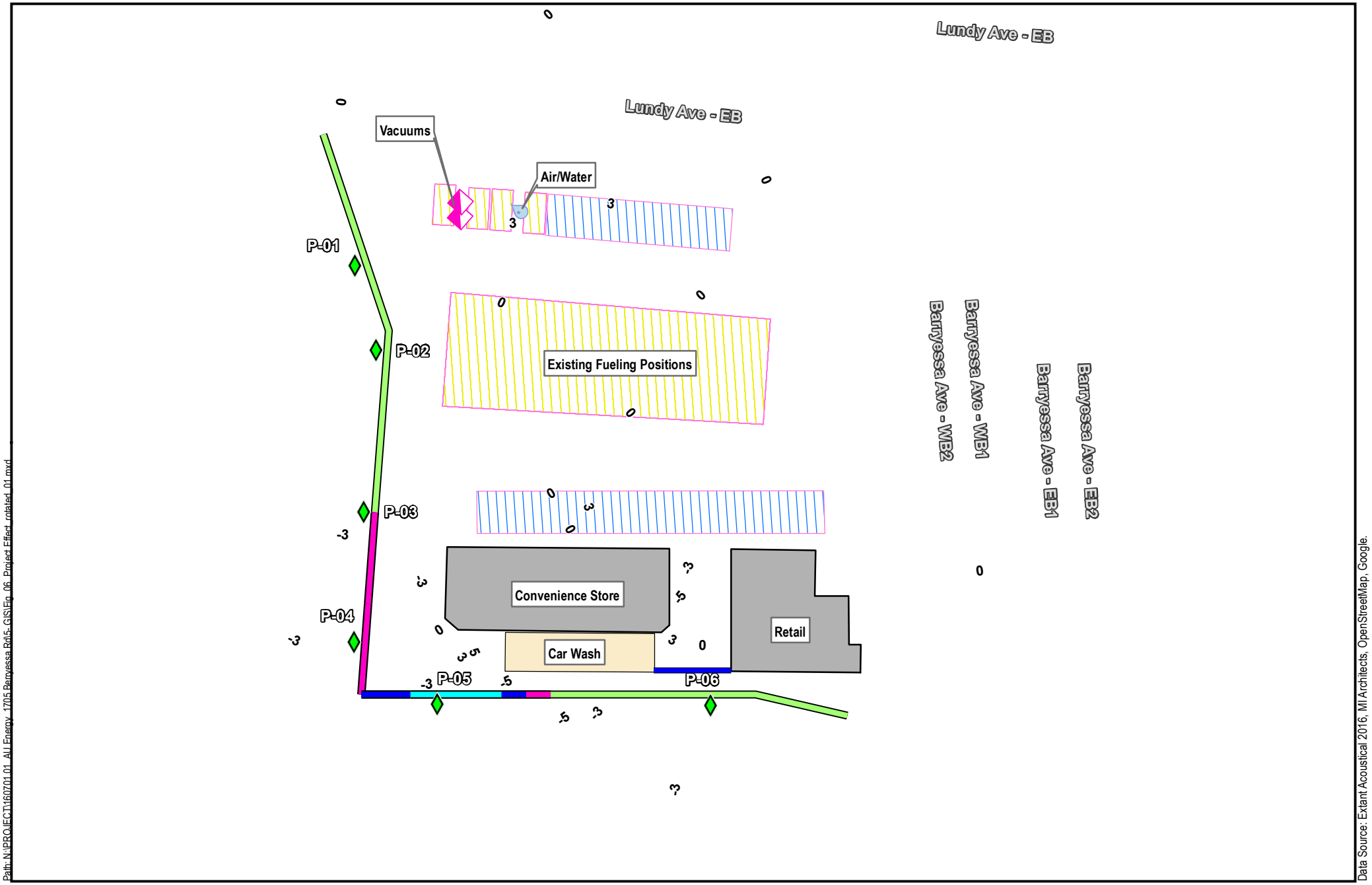
Modeled Existing Plus Project Noise Levels

Day-Night Level, dBA DNL
With Mitigation Incorporated
(Existing traffic and all proposed project sources.)

AU Energy
Shell Gas Station & Car Wash
1705 Berryessa Road
San Jose, California

EXTANT ACOUSTICAL CONSULTING LLC

Date: 09/12/2016 Author: MJC



Path: N:\PROJECT\16\0701.01_AU Energy_1705 Berryessa Rd\5- GIS\Fig_06_Project Effect_rotated_01.mxd

Data Source: Extant Acoustical 2016, MI Architects, OpenStreetMap, Google.

Legend

- Existing Residential
- Prediction Reciever
- Project Site
- Project Buildings

Difference, dBA DNL: -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5

Relative Wall Height, Feet: Existing, 8, 10, 12

Figure 6

Modeled Project Effect on Existing Environment

Day-Night Level, dBA DNL
With Mitigation Incorporated

(Positive indicates an increase in the existing noise levels, negative indicates a reduciton in existing levels)

AU Energy
Shell Gas Station & Car Wash
1705 Berryessa Road
San Jose, California

[redacted]

Works Cited

California Department of Transportation (Caltrans). (2013, September). Technical Noise Supplement. Sacramento, CA: California Department of Transportation. Prepared by ICF Jones & Stokes.

City of San Jose. (2011, November 1). Envision San Jose 2040, General Plan. San Jose, CA.

City of San Jose. (2016). *Average Daily Traffic Volumes 2005 - 2015*. Retrieved August 2016, from sanjose.gov: http://data.sanjoseca.gov/dataviews/226261/average-daily-traffic-volume-2005-2015/

Federal Highway Administration. (2006, January). Roadway Construction Nosie Model. Washington, DC.

Federal Transit Administration. (2006, May). Transit Nosie and Vibration Impact Assessment. Burlington, MA: Prepared by Harris Miller Miller & Hanson Inc. .

FHWA. (1978, December). FHWA Highway Traffic Noise Prediction Model. *FHWA-RD-77-108*. (J. A. Reagan, & T. M. Barry, Compilers) Federal Highway Administration.

SANDAG. (2003). *Trip Generation Manual.* San Diego.

Ver, I. L., & Beranek, L. L. (2006). Noise and Vibration Control Engineering, Principles and Applications. In I. L. Ver, & L. L. Beranek. Hoboken, New Jersy: John Wiley & Sons.

Appendix A Description of Noise Metrics

This Appendix describes the noise terminology and metrics used in this report.

A.1 A-weighted Sound Level, dBA

Loudness is a subjective quantity that enables a listener to order the magnitude of different sounds on a scale from soft to loud. Although the perceived loudness of a sound is based somewhat on its frequency and duration, chiefly it depends upon the sound pressure level. Sound pressure level is a measure of the sound pressure at a point relative to a standard reference value; sound pressure level is always expressed in decibels (dB), a logarithmic quantity.

Another important characteristic of sound is its frequency, or "pitch." This is the rate of repetition of sound pressure oscillations as they reach our ears. Frequency is expressed in units known as Hertz (abbreviated "Hz" and equivalent to one cycle per second). Sounds heard in the environment usually consist of a range of frequencies. The distribution of sound energy as a function of frequency is termed the "frequency spectrum." The frequency spectrum of sound is often represented as the sum of the sound energy in frequency bands that are one octave or 1/3-octave wide. An octave represents a doubling of frequency.

The human ear does not respond equally to identical noise levels at different frequencies. Although the normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of 10,000 Hz to 20,000 Hz, people are most sensitive to sounds in the voice range, between about 500 Hz to 2,000 Hz. Therefore, to correlate the amplitude of a sound with its level as perceived by people, the sound energy spectrum is adjusted, or "weighted."

The weighting system most commonly used to correlate with people's response to noise is "A-weighting" (or the "A-filter") and the resultant noise level is called the "A-weighted noise level" (dBA). A-weighting significantly de-emphasizes those parts of the frequency spectrum from a noise source that occurs both at lower frequencies (those below about 500 Hz) and at very high frequencies (above 10,000 Hz) where we do not hear as well. The filter has very little effect, or is nearly "flat," in the middle range of frequencies between 500 and 10,000 Hz. A-weighted sound levels have been found to correlate better than other weighting networks with human perception of "noisiness." One of the primary reasons for this is that the A-weighting network emphasizes the frequency range where human speech occurs, and noise in this range interferes with speech communication. The figure below shows common indoor and outdoor A-weighted sound levels and the environments or sources that produce them.

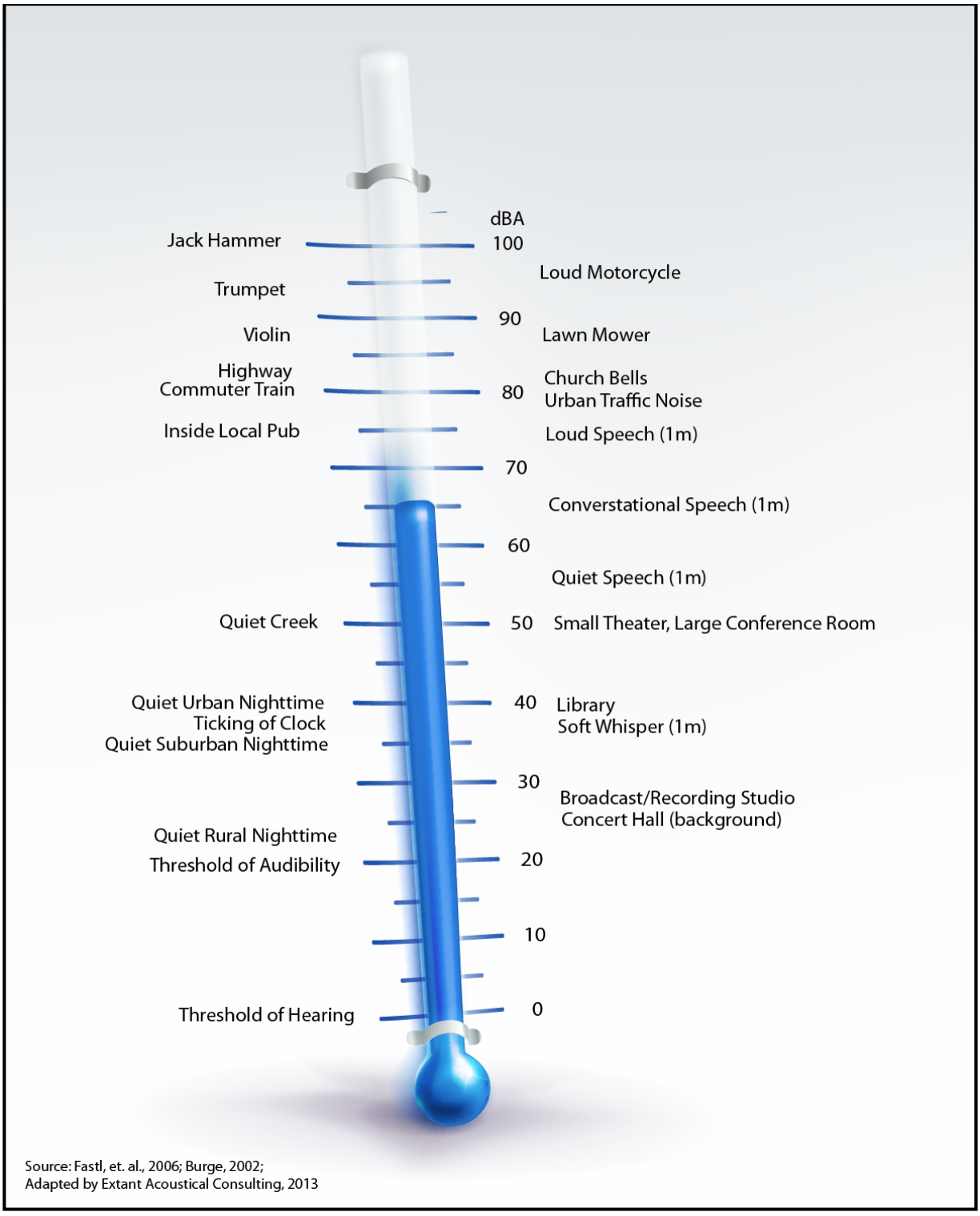


Exhibit A.1 – Common Noise Levels

A.2 Equivalent Sound Level, Leq

The Equivalent Sound Level, abbreviated L_{eq}, is a measure of the total exposure resulting from the accumulation of A-weighted sound levels over a particular period of interest -- for example, an hour, an 8-hour school day, nighttime, or a full 24-hour day. However, because the length of the period can be different depending on the time frame of interest, the applicable period should always be identified or clearly understood when discussing the metric. Such durations are often identified through a subscript, for example L_{eq1h}, or $L_{eq\ (24)}$.

L_{eq} may be thought of as a constant sound level over the period of interest that contains as much sound energy as (is "equivalent" to) the actual time-varying sound level with its normal peaks and valleys. It is important to recognize, however, that the two signals (the constant one and the time-varying one) would sound very different from each other. Also, the "average" sound level suggested by L_{eq} is not an arithmetic value, but a logarithmic, or "energy-averaged" sound level. Thus, the loudest events may dominate the noise environment described by the metric, depending on the relative loudness of the events.

A.3 Statistical Sound Level Descriptors

Statistical descriptors of the time-varying sound level are often used instead of, or in addition to L_{eq} to provide more information about how the sound level varied during the time period of interest. The descriptor includes a subscript that indicates the percentage of time the sound level is exceeded during the period. The L_{50} is an example, which represents the sound level exceeded 50 percent of the time, and equals the median sound level. Another commonly used descriptor is the L_{10}, which represents the sound level exceeded 10 percent of the measurement period and describes the sound level during the louder portions of the period. The L_{90} is often used to describe the quieter background sound levels that occurred, since it represents the level exceeded 90 percent of the period.

A.4 DNL (Day-Night Noise Level)

The 24-hour L_{eq} with a 10 dB "penalty" applied during nighttime noise-sensitive hours, 10:00 p.m. through 7:00 a.m. The DNL attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.

A.5 CNEL (Community Noise Equivalent Level)

The CNEL is similar to the DNL described above, but with an additional 5 dB "penalty" for the noise-sensitive hours between 7:00 p.m. to 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. If using the same 24-hour noise data, the CNEL is typically 0.5 dB higher than the DNL.

A.6 SEL (Sound Exposure Level)

The SEL describes the cumulative exposure to sound energy over a stated period of time; typically reference to one (1) second.

Appendix B Long-Term Noise Monitoring Data

Appendix B-1
Long-Term 24 Hour Continuous Noise Monitoring

Project: **1705 Berryessa Road**
Date: July 05, 2016 to July 06, 2016
Site: LT-01

Hour	Leq	Lmax	L50	L90
15:00	64.4	75.4	61.6	57.4
16:00	64.4	76.1	61.5	57.6
17:00	64.6	74.5	61.8	57.9
18:00	65.0	83.7	61.1	56.1
19:00	63.8	71.5	60.9	57.6
20:00	63.4	73.2	58.5	55.0
21:00	63.6	91.7	56.0	51.1
22:00	58.6	78.9	50.7	46.6
23:00	56.4	75.3	47.6	43.4
0:00	46.8	66.1	45.0	42.7
1:00	46.5	65.4	42.9	40.5
2:00	47.4	65.8	43.6	41.7
3:00	49.6	61.8	45.7	43.4
4:00	55.4	66.1	50.4	46.5
5:00	60.4	69.8	55.7	51.6
6:00	63.4	81.5	59.0	54.5
7:00	68.0	89.0	63.2	56.6
8:00	65.3	79.1	61.2	54.2
9:00	63.9	81.4	58.9	53.7
10:00	64.0	76.7	58.3	52.8
11:00	66.6	83.9	59.7	54.7
12:00	64.5	74.6	58.7	53.3
13:00	64.2	75.6	58.3	53.6
14:00	63.5	74.0	59.5	54.3

	Daytime (7 a.m. - 10 p.m.)	Nighttime (10 p.m. - 7 a.m.)
2:00	47.4	65.8	43.6	41.7
3:00	49.6	61.8	45.7	43.4

Lowermost Level

Leq	Lmax	L50	L90
63.4	71.5	56.0	51.1
46.5	61.8	42.9	40.5

Average Level

Leq	Lmax	L50	L90
65.0	78.9	59.9	55.0
55.0	68.7	47.7	44.6

Uppermost-Level

Leq	Lmax	L50	L90
68.0	91.7	63.2	57.9
60.4	78.9	55.7	51.6

Energy Distribution

Daytime	94%
Nighttime	6%

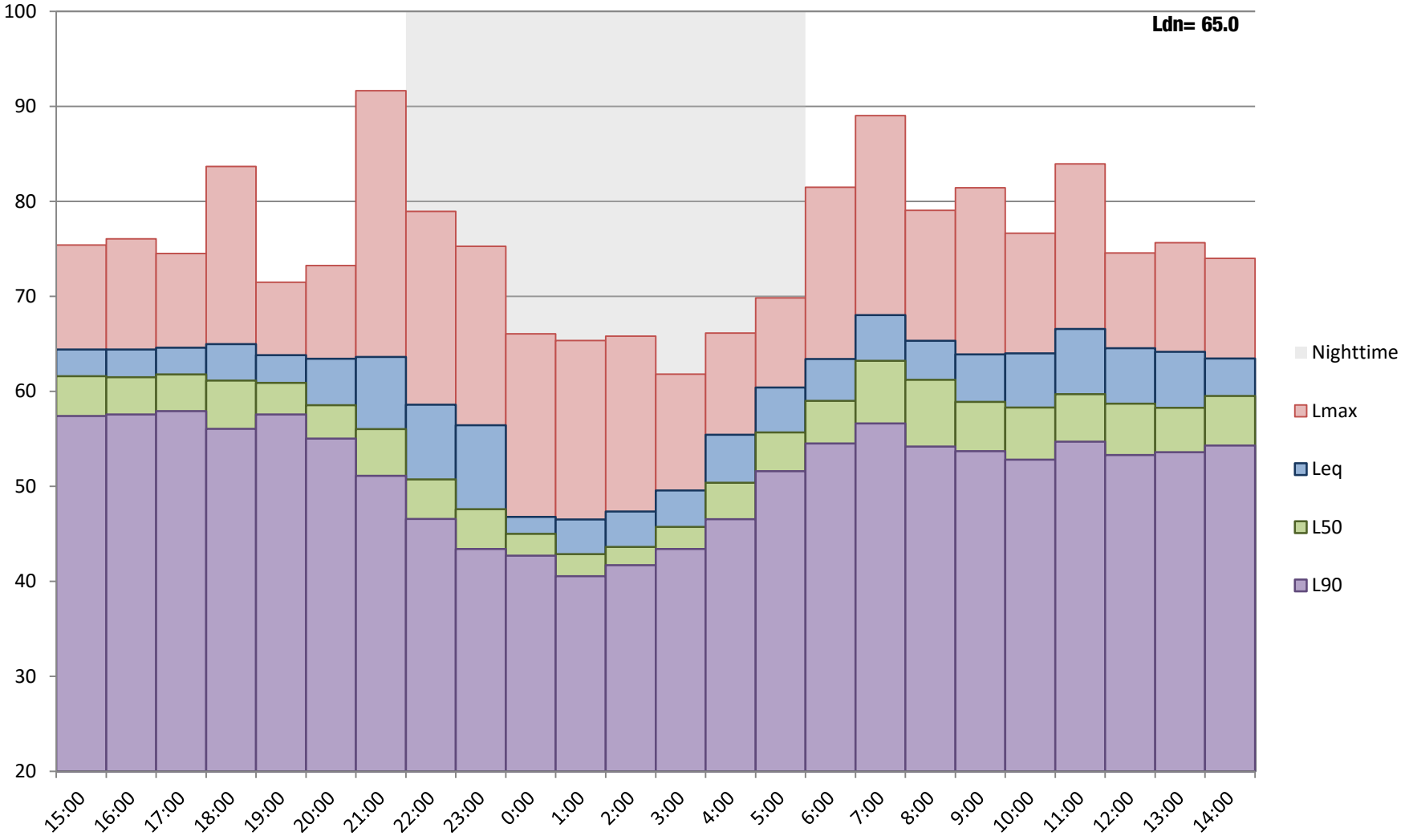
Calculated L_{dn}, dBA

65.0

Appendix B-1

1705 Berryessa Road - LT-01

July 05, 2016 to July 06, 2016



Appendix B- .
Long-Term 24 Hour Continuous Noise Monitoring

Project: **1705 Berryessa Road**
Date: July 05, 2016 to July 06, 2016
Site: LT-02

Hour	Leq	Lmax	L50	L90
15:00	64.0	75.0	62.8	55.1
16:00	63.6	80.0	61.7	54.4
17:00	64.3	86.8	61.7	54.9
18:00	66.1	89.5	61.1	54.5
19:00	62.2	76.4	59.1	53.7
20:00	61.1	76.0	57.1	51.7
21:00	62.5	93.4	55.8	49.9
22:00	59.4	84.1	53.4	47.0
23:00	57.0	81.1	50.9	43.6
0:00	53.1	71.5	46.0	40.1
1:00	52.9	71.7	44.8	39.9
2:00	53.0	74.0	46.0	40.0
3:00	54.1	71.5	45.6	41.3
4:00	58.6	76.6	51.5	44.3
5:00	63.2	82.8	58.7	51.0
6:00	65.1	85.2	63.3	56.2
7:00	73.3	92.2	66.8	60.5
8:00	64.9	82.3	63.6	55.0
9:00	64.0	84.2	61.4	53.9
10:00	63.5	79.3	60.7	52.9
11:00	70.4	88.7	62.4	53.9
12:00	63.4	77.2	61.8	54.2
13:00	63.1	78.1	60.4	53.4
14:00	63.9	77.7	61.4	54.7

	Daytime (7 a.m. - 10 p.m.)	Nighttime (10 p.m. - 7 a.m.)
Daytime (7 a.m. - 10 p.m.)		
Nighttime (10 p.m. - 7 a.m.)		

Lowermost Level

Leq	Lmax	L50	L90
61.1	75.0	55.8	49.9
52.9	71.5	44.8	39.9

Average Level

Leq	Lmax	L50	L90
66.2	82.4	61.2	54.2
59.7	77.6	51.1	44.8

Uppermost-Level

Leq	Lmax	L50	L90
73.3	93.4	66.8	60.5
65.1	85.2	63.3	56.2

Energy Distribution

Daytime	88%
Nighttime	12%

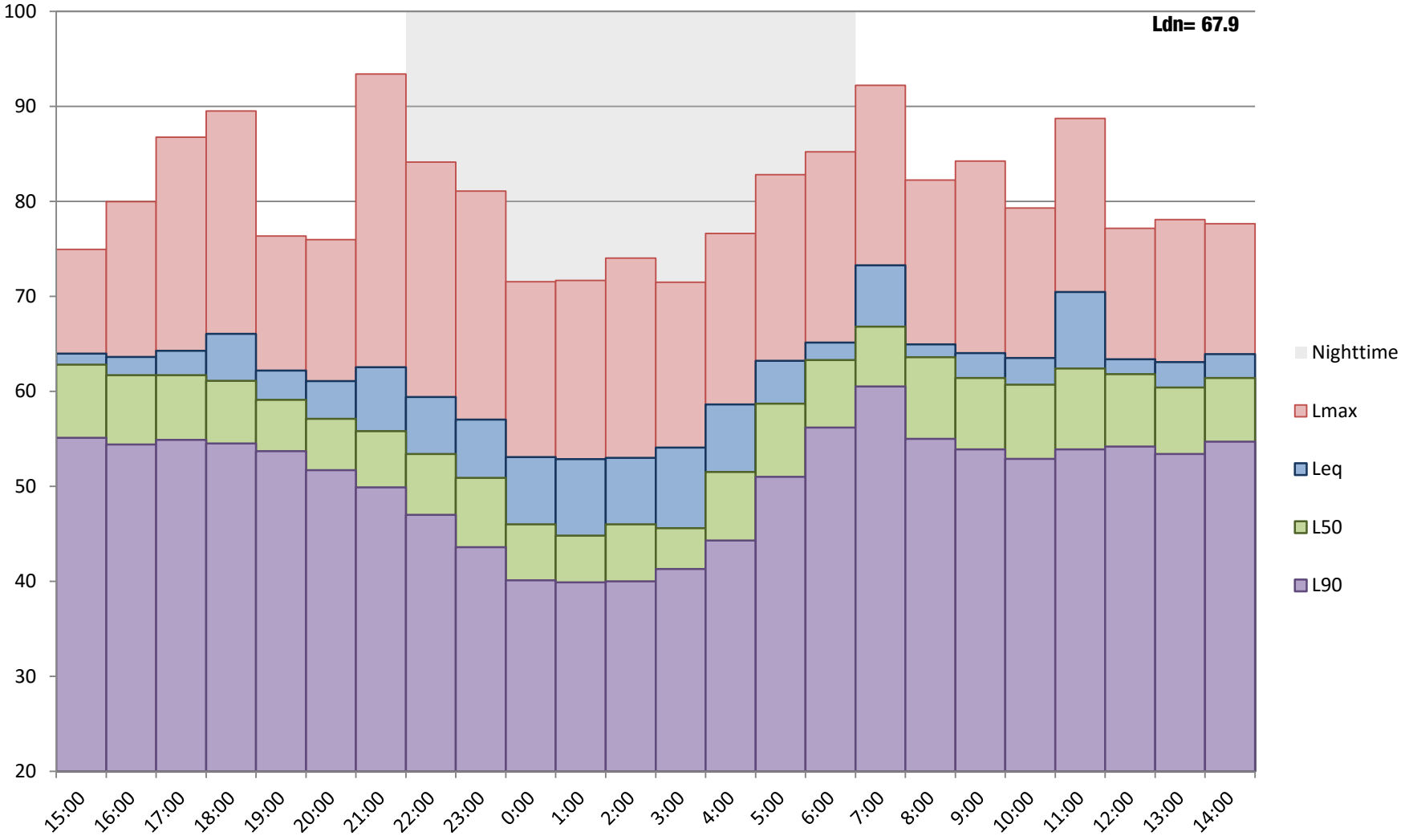
Calculated L_{dn}, dBA

67.9

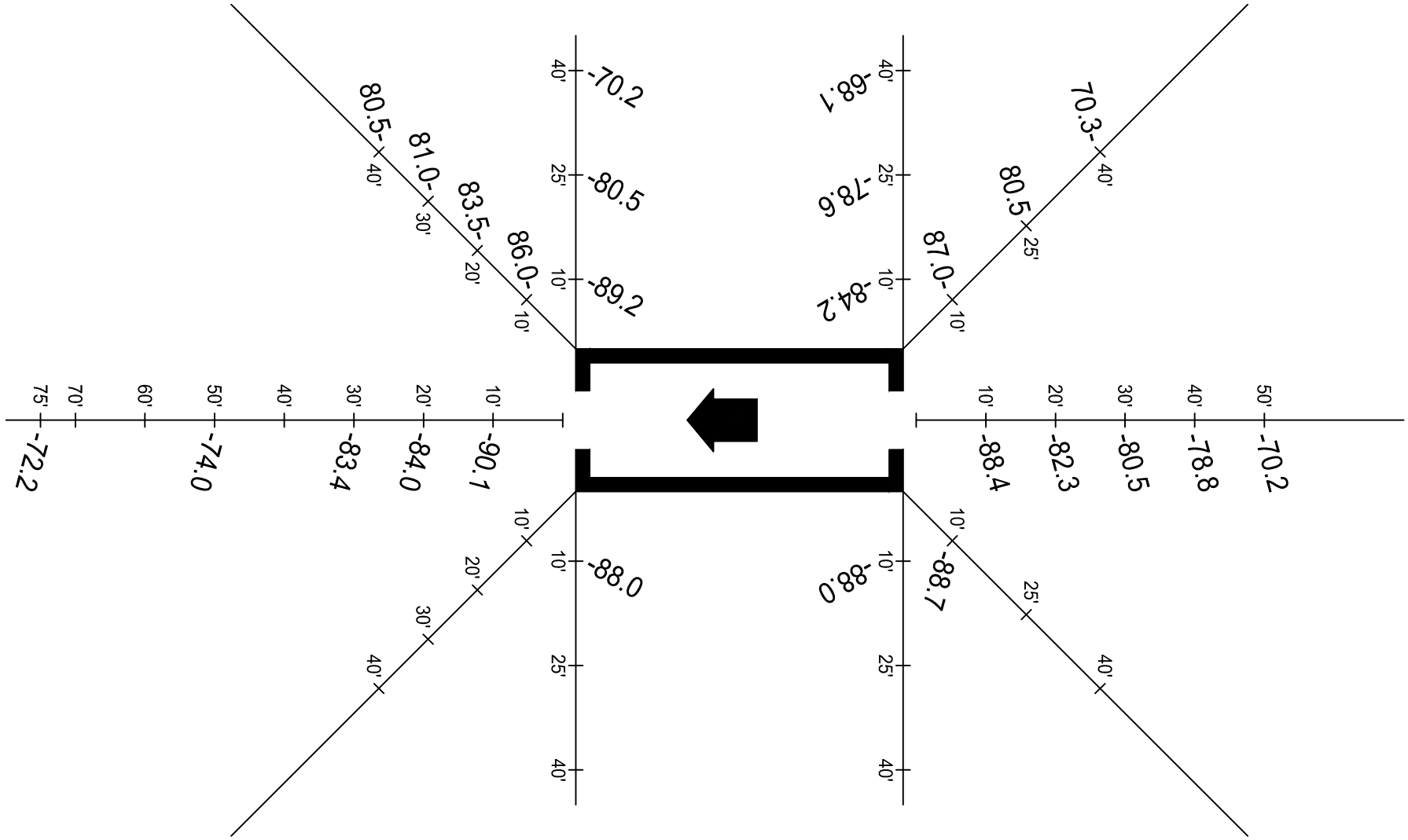
Appendix B- .

1705 Berryessa Road - LT-02

July 05, 2016 to July 06, 2016



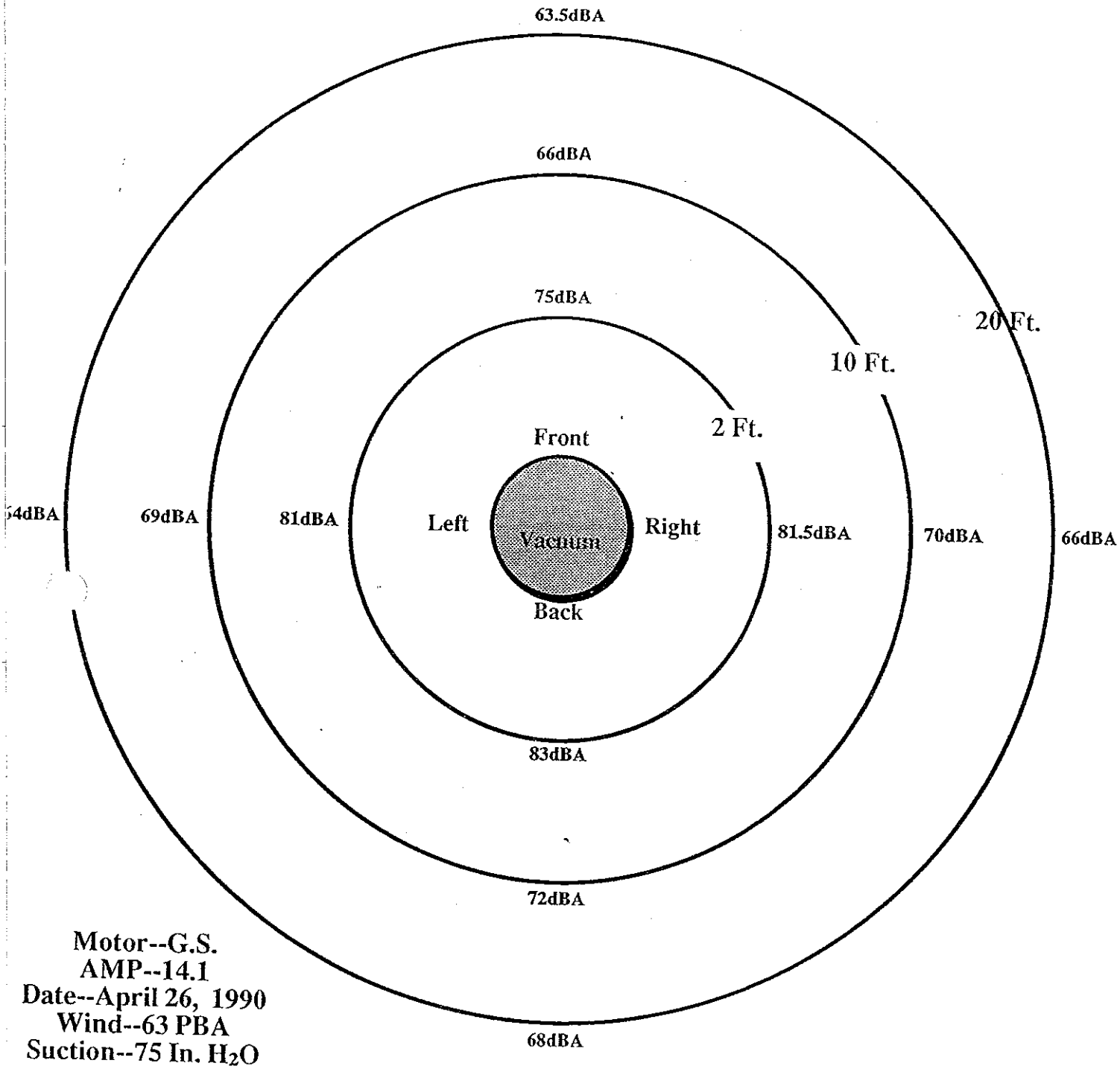
Appendix C Manufacturer Sound Level Data



Ryko Solutions 3-Fan SlimLine Dryer

Sound Readings Taken 4/4/2016 at Toyota of Des Moines

RYKO Round Stainless Steel Vacuum
Noise Testing
Standard Vacuum With Noise Absorbing Insulation



Motor--G.S.
AMP--14.1
Date--April 26, 1990
Wind--63 PBA
Suction--75 In. H_2O