
APPENDIX G

ENVIRONMENTAL NOISE ASSESSMENT
GILROY SPORTS PARK MASTER PLAN UPDATE

ENVIRONMENTAL NOISE ASSESSMENT

GILROY SPORTS PARK MASTER PLAN UPDATE
GILROY, CALIFORNIA

WJVA Report No. 19-035

PREPARED FOR

EMC PLANNING
301 LIGHTHOUSE AVENUE, SUITE C
MONTEREY, CA 93940

PREPARED BY

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1. INTRODUCTION

Project Description:

The proposed project is an update to the Gilroy Sports Park Master Plan (Master Plan) to accommodate construction and operations of a permanent structure and related parking infrastructure for an indoor recreational facility. The project site plan is provided as Figure 1.

An amendment to the Master Plan is proposed to allow the construction and operations of a proposed 100,000 square-foot, two-story permanent building with two ice rinks and related parking in the Master Plan Phase III area, instead of an approximately 41,000 square foot tent-like structure, a multi-use ball field, and related parking that are currently identified in the Master Plan for the Phase III area.

The proposed indoor facility would be located east of the play fields in the Master Plan Phase V area and adjacent to the existing drainage basin facility in the southern portion of the Master Plan Phase III area. The proposed building would have an approximate 70,000 square foot building footprint. The facility would be approximately 30 feet tall with two interior levels for a total of approximately 100,000 square feet. The majority of the core infrastructure would be located on the main level.

The proposed project would include 387 parking spaces in a surface parking lot south of the Sports Park entrance road. Parking spaces would be nine feet wide and 18 feet in length; access aisles would be 25 feet wide, with turning radii sufficient to accommodate the turning movements of a 40-foot long fire truck.

Year-round ice programs that would be offered to the public include ice hockey, figure skating, broomball, curling, speed skating, and ice dancing, as well as recreational skating. The facility would also host various corporate and private events, as well as birthday parties. The facility would offer a number of off-ice programming such as fitness training, dance and yoga. The hours of operation would be 5:30 am to 1:00 am daily, 365 days per year. It is anticipated this facility would have 500,000 visitors/participants annually with the majority of its participants under the age of 18. No collegiate or NHL training would occur at this facility.

Environmental Noise Assessment:

The City of Gilroy has determined that evaluation of project-specific environmental impacts of the proposed Master Plan Update including the indoor facility is necessary to determine if the project would result in new or more severe environmental impacts. The analysis will determine if the impacts and mitigation measures already identified and addressed in the Certified Master Plan EIR adequately address updating the Master Plan and the proposed development project.

This environmental noise assessment has been prepared to determine if significant noise impacts will be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV

Acoustics, Inc. (WJVA), is based upon the project description provided by the applicant, a project site plan dated 2019, project-related traffic data provided by the project traffic engineer (Hexagon Transportation Consultants, Inc.) and a project site visit on September 18 and 19, 2019. Revisions to the site plan, project-related traffic data or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides typical A-weighted sound levels for common noise sources.

2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines apply the following questions for the assessment of significant noise impacts for a project:

- a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?
- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

a. Noise Level Standards

City of Gilroy

Section 8 (Community Resources and Potential Hazards) of the City of Gilroy General Plan (adopted June 2002) establishes land use compatibility criteria in terms of the Day-Night Average Level (DNL or L_{dn}). The L_{dn} is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The L_{dn} represents cumulative exposure to noise over an extended period of time and is therefore calculated based upon *annual average* conditions.

The exterior noise exposure criterion of the General Plan is 60 dB L_{dn} for residential land uses and 65 dB L_{dn} for commercial land uses. The 2002 General Plan provides a description of where the outdoor noise level standards should be applied for residential land uses (i.e., 15 feet outside the rear wall, 20 feet outside front wall, etc.). However, the City of Gilroy is currently in the process of updating their General Plan. While the Noise Element of the Draft 2040 General Plan maintains the same noise level standards, it now states that the exterior noise level standards are to be applied to outdoor activity areas. Outdoor activity areas generally include backyards of single-family residences, individual patios or decks of multi-family developments and common outdoor recreation areas of multi-family developments. This modification as to where the exterior noise level standards are to be applied is consistent with most contemporary noise standards and will therefore be applied in the determination of potential noise impacts for this project. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation.

The General Plan also requires that interior noise levels attributable to exterior sources not exceed 45 dB L_{dn}. This standard is consistent with interior noise level criteria applied by the State of California and the U.S. Department of Housing and Urban Development (HUD). The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

Additionally, Section 30.41.31 (Specific Provisions-Noise) of the City of Gilroy Zoning Ordinance establishes noise level standards for non-transportation noise sources (fixed sources). For residential noise sources, the ordinance establishes an L_{max} (maximum) noise level criterion of 60 dB and an L₁₀ statistical performance standard of 70 dB. For commercial noise sources (impacting residential properties), the ordinance establishes an L₁₀ statistical performance standard of 70 dB between the hours of 7:00 a.m. and 10:00 p.m.

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

b. Construction Noise and Vibration

Section 16.38 (Hours of Construction) of The City of Gilroy Municipal Code limits hours of construction to be between 7:00 a.m. and 7:00 p.m., Monday through Friday and 9:00 a.m. to 7:00 p.m. on Saturdays.

There are no local, state or federal standards that specifically address construction vibration. Additionally, the City of Gilroy General Plan does not specifically provide vibration guidelines or standards. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table I and Table II, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE I		
GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA		
Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans

TABLE II		
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA		
Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Caltrans		

3. SETTING

The approximately 79-acre Gilroy Sports Park Master Plan project site (Gilroy Sports Park) is located in unincorporated Santa Clara County south of downtown Gilroy, outside of the city limit and urban service area (USA), but within the City's 20-year planning boundary. The project site and vicinity are provided as Figure 2.

The site is bound by residential uses to the north; agricultural land, Monterey Road and residential uses along Farman Frontage Road to the east; and by Uvas Creek to the south and west. Surrounding land uses include residential between the project site and West Luchessa Avenue, and residential north of West Luchessa Avenue; agricultural uses and two residences between the project site and Monterey Road, and visitor-serving commercial and self-storage facility uses to the east beyond Monterey Road; residential and agricultural uses to the south and west beyond Uvas Creek.

The Gilroy Sports Park is owned and operated by the City of Gilroy. Current uses and improvements on the site consist of approximately 11 acres of little league baseball diamonds and two playground areas, and overall utility infrastructure and entrance driveway. The remaining acres are vacant and used for interim agricultural row-crop production. The Gilroy Sports Park site is accessed by a driveway to Monterey Street. The topography of the project site is generally flat.

a. Background Noise Level Measurements

Existing noise levels in the project vicinity are dominated by traffic noise along U.S. Route 101 (US 101), Monterey Road and Luchessa Avenue. Additional sources of noise observed during site inspection included noise associated with landscaping activities, human activities in the park and playgrounds and aircraft overflights.

Measurements of existing ambient noise levels in the project vicinity were conducted on September 18, 2019. Long-term (24-hour) ambient noise level measurements were conducted at two (2) locations (site LT-1 and LT-2). Site LT-1 was located approximately 225 feet from the centerline of US 101, in the vicinity of existing residential land uses south of the project site. Site LT-2 was located approximately 900 feet from the centerline of US 101, west of the project site. The two long-term monitoring site locations were selected to approximate the locations of the long-term monitoring sites utilized in the Gilroy Sports Park Master Plan prepared in 1999.

Additionally, short-term (15-minute) ambient noise level measurements were conducted at six (6) locations (Sites ST-1 through ST-6). The locations of the noise monitoring sites are shown on Figure 2. Two (2) individual measurements were taken at each of the four short-term sites to quantify ambient noise levels in the morning and afternoon hours.

Noise monitoring equipment consisted of Larson-Davis Laboratories Model LDL-820 sound level analyzers equipped with B&K Type 4176 1/2" microphones. The equipment complies with the

specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meters were calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements.

Measured hourly energy average noise levels (L_{eq}) at site LT-1 ranged from a low of 58.5 dB between 1:00 a.m. and 2:00 a.m. to a high of 67.0 dBA between 7:00 p.m. and 8:00 p.m. Hourly maximum (L_{max}) noise levels at site LT-1 ranged from 70.6 to 84.3 dBA. Residual noise levels at the monitoring site, as defined by the L_{90} , ranged from 59.6 to 63.6 dBA. The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources. The measured L_{dn} value at site LT-1 during the 24-hour noise measurement period was 69.7 dB. Figure 3 graphically depicts hourly variations in ambient noise levels at the long-term monitoring site.

Measured hourly energy average noise levels (L_{eq}) at site LT-2 ranged from a low of 53.7 dB between midnight and 1:00 a.m. to a high of 68.7 dBA between 8:00 p.m. and 9:00 p.m. Hourly maximum (L_{max}) noise levels at site LT-2 ranged from 65.6 to 88.4 dBA. Residual noise levels at the monitoring site, as defined by the L_{90} , ranged from 46.8 to 61.1 dBA. The measured L_{dn} value at site LT-2 during the 24-hour noise measurement period was 66.0 dB. Figure 4 graphically depicts hourly variations in ambient noise levels at the long-term monitoring site.

Table III summarizes short-term noise measurement results. The noise measurement data included energy average (L_{eq}) maximum (L_{max}) as well as five individual statistical parameters. Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. For instance, the L_{90} describes the noise level exceeded 90 percent of the time during the measurement period, and is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources.

Short-term noise measurements were conducted for 15-minute periods. Two (2) individual noise level measurements were taken at each of the six monitoring sites, to assess morning and afternoon levels. Sites ST-1 was located adjacent to Monterey Frontage Road, the dominant source of noise was roadway traffic associated with US 101 and Monterey Road. Site ST-2 was located in the southwest portion of the existing developed portion of the Sports Park facility, the dominant source of noise was distant roadway traffic, noise levels associated with parking lot activities and human voices. Sites ST-3 and ST-4 were located within an existing residential development (Oak Place) located north of the project site. Dominant sources of noise at these two sites were distant roadway traffic, aircraft overflights and noise associated with residential activities. Sites ST-5 and ST-6 were located within the project site, on land currently used for row crops. The dominant sources of noise at these two sites were distant roadway traffic and noise associated with agricultural activities. The overall noise measurement data indicate that noise in the project vicinity is highly influenced by vehicular traffic on US 101, Monterey Road and other local roadways.

TABLE III
SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA
GILROY SPORTS PARK MASTER PLAN UPDATE
SEPTEMBER 18 & 19, 2019

Site	Time	A-Weighted Decibels, dBA							Sources
		L _{eq}	L _{max}	L ₂	L ₈	L ₂₅	L ₅₀	L ₉₀	
ST-1	8:50	66.0	77.1	72.5	67.0	65.1	63.5	61.1	TR
ST-1	2:45	64.3	74.6	70.4	66.4	64.6	63.3	61.2	TR
ST-2	9:10	53.1	65.1	57.2	56.3	54.0	52.2	49.0	TR, V
ST-2	3:05	51.8	57.6	54.9	53.8	52.8	51.8	48.6	TR, V
ST-3	9:30	48.9	55.5	53.2	52.1	59.8	50.4	46.8	TR, V, L, D
ST-3	3:30	48.4	54.6	51.6	50.8	48.9	47.9	46.4	TR, V, AC, D
ST-4	9:55	45.6	54.1	51.0	49.7	46.5	41.0	39.2	TR, V
ST-4	3:50	51.7	63.8	58.9	56.9	54.3	42.9	39.7	TR, V, D
ST-5	10:35	49.7	52.9	50.9	48.4	47.2	42.8	40.0	TR, AG, B
ST-5	4:15	46.0	50.4	48.5	47.7	46.7	45.7	44.3	TR
ST-6	10:55	53.4	61.0	56.2	54.7	52.2	51.0	49.0	TR, AG, B
ST-6	4:35	51.1	56.1	54.8	53.5	51.7	50.7	48.8	TR

TR: Traffic AC: Aircraft V: Voices D: Dogs Barking B: Birds L: Landscaping Activities AG: Agriculture Activities
Source: WJV Acoustics, Inc.

4. PROJECT-RELATED NOISE LEVELS

a. Traffic Noise (Less Than Significant)

WJVA utilized the FHWA Traffic Noise Model to quantify expected project-related increases in traffic noise exposure along roadways in the project vicinity. The FHWA Model is a standard analytical method used by state and local agencies for roadway traffic noise prediction. The model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ± 1.5 dB. To predict L_{dn} values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Traffic noise exposure for Existing, Existing Plus Project, Cumulative and Cumulative Plus Project traffic conditions was calculated based upon the FHWA Model and traffic volumes provided by the project traffic engineer (Hexagon Transportation Consultants, Inc.) The posted vehicle speed limits on the analyzed roadways varied throughout the study area, and were determined during the project site visit. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C. Table IV provides the noise exposure levels at a reference distance of 100 feet from the center of each analyzed roadway segment, for Existing and Existing Plus Project traffic conditions. Table V provides the noise exposure levels at a reference distance of 100 feet from the center of each analyzed roadway segment, for Future Cumulative and Cumulative Plus Project traffic conditions.

TABLE IV

**GILROY SPORTS PARK MASTER PLAN UPDATE
GILROY, CALIFORNIA
EXISTING CONDITIONS**

Roadway Name (Description)	L _{dn} , dB ¹		Change	Significant Impact?
	No Project	Plus Project		
Monterey Road (n/o Tenth Street)	61.3	61.3	0.0	No
Monterey Road (s/o Tenth Street)	61.2	61.4	0.2	No
Tenth Street (w/o Monterey Road)	60.2	60.2	0.0	No
Tenth Street (e/o Monterey Road)	61.0	61.1	0.1	No
Monterey Road (n/o Luchessa Avenue)	61.1	61.3	0.2	No
Monterey Road (s/o Luchessa Avenue)	64.4	64.5	0.1	No
Luchessa Avenue (w/o Monterey Road)	61.4	61.5	0.1	No
Luchessa Avenue (e/o Monterey Road)	60.0	60.0	0.0	No
Monterey Road (n/o Monterey Frontage Road)	64.3	64.5	0.2	No
Monterey Road (s/o Monterey Frontage Road)	64.2	64.4	0.2	No
Monterey Frontage Rd (w/o Monterey Road)	51.8	54.4	2.6	No
US 101 SB Ramps (n/o Monterey Road)	60.3	60.4	0.1	No
US 101 SB Ramps (s/o Monterey Road)	58.6	58.7	0.1	No
Monterey Road (w/o US 101 SB Ramps)	64.2	64.4	0.2	No
Monterey Road (e/o US 101 SB Ramps)	64.0	64.1	0.1	No
Monterey Road (n/o US 101 NB Ramps)	64.0	64.1	0.1	No
Monterey Road (e/o US 101 NB Ramps)	62.2	62.2	0.0	No
US 101 NB Ramps (w/o Monterey Road)	60.5	60.7	0.2	No
US 101 NB Ramps (e/o Monterey Road)	56.1	56.1	0.0	No
Thomas Road (s/o Luchessa Avenue)	59.2	59.3	0.1	No
Luchessa Avenue (w/o Thomas Road)	55.2	55.4	0.2	No
Luchessa Avenue (e/o Thomas Road)	60.5	60.6	0.1	No
Princeville Street (n/o Luchessa Avenue)	53.5	53.7	0.2	No
Luchessa Avenue (w/o Princeville Street)	60.6	60.7	0.1	No
Luchessa Ave (e/o Princeville Street)	60.9	61.0	0.1	No
Church Street (n/o Luchessa Avenue)	51.1	51.3	0.2	No
Luchessa Avenue (w/o Church Street)	60.8	60.9	0.1	No
Luchessa Avenue (e/o Church Street)	61.0	61.1	0.1	No

¹At a typical residential setback (assumed to be 100 feet from the center of the roadway).

Source: WJV Acoustics, Inc.

Hexagon Transportation Consultants, Inc

<p style="text-align: center;">TABLE V</p> <p style="text-align: center;">GILROY SPORTS PARK MASTER PLAN UPDATE</p> <p style="text-align: center;">GILROY, CALIFORNIA</p> <p style="text-align: center;">CUMULATIVE CONDITIONS</p>				
Roadway Name (Description)	L _{dn} , dB ¹		Change	Significant Impact?
	No Project	Plus Project		
Monterey Road (n/o Tenth Street)	64.3	64.3	0.0	No
Monterey Road (s/o Tenth Street)	64.4	64.5	0.1	No
Tenth Street (w/o Monterey Road)	63.5	63.5	0.0	No
Tenth Street (e/o Monterey Road)	64.3	64.3	0.0	No
Monterey Road (n/o Luchessa Avenue)	63.8	63.8	0.0	No
Monterey Road (s/o Luchessa Avenue)	65.4	65.5	0.1	No
Luchessa Avenue (w/o Monterey Road)	64.0	64.1	0.1	No
Luchessa Avenue (e/o Monterey Road)	61.1	61.1	0.0	No
Monterey Road (n/o Monterey Frontage Road)	65.3	65.5	0.2	No
Monterey Road (s/o Monterey Frontage Road)	65.3	65.4	0.1	No
Monterey Frontage Rd (w/o Monterey Road)	51.8	54.4	2.6	No
US 101 SB Ramps (n/o Monterey Road)	60.8	60.9	0.1	No
US 101 SB Ramps (s/o Monterey Road)	59.5	59.6	0.1	No
Monterey Road (w/o US 101 SB Ramps)	65.3	65.4	0.1	No
Monterey Road (e/o US 101 SB Ramps)	65.0	65.1	0.1	No
Monterey Road (n/o US 101 NB Ramps)	64.9	65.0	0.1	No
Monterey Road (e/o US 101 NB Ramps)	62.4	62.4	0.0	No
US 101 NB Ramps (w/o Monterey Road)	62.2	62.3	0.1	No
US 101 NB Ramps (e/o Monterey Road)	57.5	57.5	0.0	No
Thomas Road (s/o Luchessa Avenue)	60.2	60.2	0.0	No
Luchessa Avenue (w/o Thomas Road)	61.8	61.9	0.1	No
Luchessa Avenue (e/o Thomas Road)	63.8	63.8	0.0	No
Princeville Street (n/o Luchessa Avenue)	55.5	55.6	0.1	No
Luchessa Avenue (w/o Princeville Street)	63.8	63.8	0.0	No
Luchessa Ave (e/o Princeville Street)	63.7	63.8	0.1	No
Church Street (n/o Luchessa Avenue)	54.0	54.0	0.0	No
Luchessa Avenue (w/o Church Street)	63.7	63.8	0.1	No
Luchessa Avenue (e/o Church Street)	63.7	63.8	0.1	No

¹At a typical residential setback (assumed to be 100 feet from the center of the roadway).

Source: WJV Acoustics, Inc.

Hexagon Transportation Consultants, Inc

Reference to Table IV and Table V indicate that traffic noise exposure at existing land uses adjacent to roadways in the vicinity of the project would generally be expected to increase by approximately 0.0 to 0.2 dB as a result of the project. Additionally, traffic noise exposure along Monterey Frontage Road would be expected to increase by approximately 2.6 dB as result of the project.

Decibels (dB) are logarithmic in nature and cannot be added or subtracted arithmetically. In terms of human perception, a 5 dB increase or decrease is considered to be a noticeable change in noise levels. Additionally, a 10 dB increase or decrease is perceived by the human ear as half

as loud or twice as loud. In terms of perception, generally speaking the human ear cannot perceive an increase (or decrease) in noise levels less than 3 dB.

In regards to the noise levels described in Table IV and Table V, while project-related noise levels along some roadway segments would be expected to result in slight increases to existing and cumulative conditions noise exposure levels in excess of the City's noise level standards, the exceedances are not the result of the project, nor would they result in any increase in noise levels considered to be within the range of perception by the human ear. Therefore, project-related increases in traffic noise exposure are not considered to be a significant impact. Additionally, noise levels described in Table IV and Table V do not take into consideration any site-specific shielding that may occur as a result of topography, existing sound walls, buildings, etc., and are considered to be a generalized worst-case assessment of traffic noise levels in the project area.

b. Operational Noise from On-Site Sources (Less Than Significant)

The majority of operational activities relating to the project would be located within the above-described permanent building structure, where noise levels would generally be contained within the building itself. Sources of exterior operational noise from the proposed project would typically be limited to parking lot vehicle movements, outdoor human activity and mechanical/HVAC systems.

Vehicle Movements

The proposed project would include 387 parking spaces in a surface parking lot south of the Sports Park entrance road. Parking spaces would be nine feet wide and 18 feet in length; access aisles would be 25 feet wide, with turning radii sufficient to accommodate the turning movements of a 40-foot long fire truck. The existing access to the drainage basin in the southeast corner of the Master Plan area would be realigned slightly but would be maintained along the east border of the Master Plan Phase III area.

Noise due to traffic in parking lots is typically limited by low speeds and is not usually considered to be significant. Human activity in parking lots that can produce noise includes voices, stereo systems and the opening and closing of car doors and trunk lids. Such activities can occur at any time during regular hours of operation. The noise levels associated with these activities cannot be precisely defined due to variables such as the number of parking movements, time of day and other factors.

It is typical for a passing car in a parking lot to produce a maximum noise level of 60 to 65 dBA at a distance of 50 feet, which is comparable to the level of a raised voice. For this project, the closest proposed parking would be located approximately 500 feet from the closest existing residential uses. Taking into account typical noise attenuation with increasing distance from a moving point source (approximately 4.5 dB/doubling of distance), noise levels associated with vehicle movements within the project parking area would be expected to be approximately 45-50 dB at the closest existing residential land uses.

Reference to existing ambient noise levels indicate that existing ambient noise levels at the residential land uses adjacent to the project site and areas surrounding the project site already exceed noise levels that would be expected to occur as a result of on-site vehicle movements. Parking lot vehicle movement and human activity noise would not be considered a significant impact.

Slowly Moving Trucks

It is not known if the project would include deliveries from large trucks. If trucks were to access the project site, trucks would enter via the existing Sports Park entrance road. Trucks would proceed to the Ice Rink Facility through the parking lot.

WJVA has conducted measurements of the noise levels produced by slowly moving trucks for a number of studies. Such truck movements would be expected to produce noise levels in the range of 71-77 dBA at a distance of 50 feet. The range in measured truck noise levels is due to differences in the size of trucks, their speed of movement and whether they have refrigeration units in operation during the pass-by. Any potential truck movements associated with the project would occur at distances of 500 feet or greater from existing noise-sensitive land uses, at which maximum noise levels associated with truck movements would be in the range of 50-55 dB.

Reference to existing ambient noise levels indicate that existing ambient noise levels at the residential land uses adjacent to the project site and areas surrounding the project site already exceed noise levels that would be expected to occur as a result of on-site truck movements. Noise associated with truck movements at the project site would not be considered a significant impact.

HVAC/Mechanical Equipment

It is not known if the project will include roof-mounted mechanical/HVAC units on the buildings. However, based upon data collected by WJVA for previous acoustical studies, it is estimated that noise levels from roof-mounted HVAC units at the closest off-site residential land uses to the project site would be in the range of 35-40 dBA. These levels would generally not be audible above existing ambient noise levels at adjacent land-uses and would not exceed any noise level standards.

c. Noise from Construction (Less Than Significant)

Construction noise could occur at various locations within and near the project site through the build-out period. The distance from the closest residences to the project site is approximately 10 feet. Table V provides typical construction-related noise levels at distances of 50 feet, 100 feet, and 300 feet.

TABLE V
TYPICAL CONSTRUCTION EQUIPMENT
MAXIMUM NOISE LEVELS, dBA

Type of Equipment	50 Ft.	100 Ft.	300 Ft.
Concrete Saw	90	84	74
Crane	81	75	65
Excavator	81	75	65
Front End Loader	79	73	63
Jackhammer	89	83	73
Paver	77	71	61
Pneumatic Tools	85	79	69
Dozer	82	76	66
Rollers	80	74	64
Trucks	86	80	70
Pumps	80	74	64
Scrapers	87	81	71
Portable Generators	80	74	64
Front Loader	86	80	70
Backhoe	86	80	70
Excavator	86	80	70
Grader	86	80	70

Source: FHWA

Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

Construction noise is not usually considered to be a significant impact if construction is limited to the daytime hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The City of Gilroy Noise Element of the General Plan limits hours of construction to be between 7:00 a.m. and 7:00 p.m., Monday through Friday and 9:00 a.m. to 7:00 p.m. on Saturdays.

d. Vibration Impacts (Less Than Significant)

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur from construction on the project site. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities (if they were to occur). Typical vibration levels at distances of 25 feet and 100 feet are summarized by Table VI.

TABLE VI
TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

Equipment	PPV (in/sec)	
	@ 25'	@ 100'
Bulldozer (Large)	0.09	0.011
Bulldozer (Small)	0.003	0.0004
Loaded Truck	0.08	0.01
Jackhammer	0.04	0.005
Vibratory Roller	0.2	.03
Loaded Trucks	0.08	.01

Source: *Caltrans*

After full project build out, it is not expected that ongoing school operational activities will result in any vibration impacts at nearby sensitive uses. Activities involved in trash bin collection could result in minor on-site vibrations as the bin is placed back onto the ground. Such vibrations would not be expected to be felt at the closest off-site sensitive uses. No mitigation is required.

5. IMPACT SUMMARY

Project-related noise levels resulting from the proposed Master Plan Update and the implementation of the project (Ice Rink Facility) are not expected to exceed any applicable City of Gilroy noise level standards or result in any significant long-term increases in ambient noise levels at nearby noise- sensitive receiver locations.

Project construction could result in-short term increases in localized ambient noise levels. However, construction-related noise levels are not considered to be a significant impact if local construction noise time limits are observed and equipment is properly maintained and muffled. Additional mitigation is not required.

FIGURE 1: PROJECT SITE PLAN

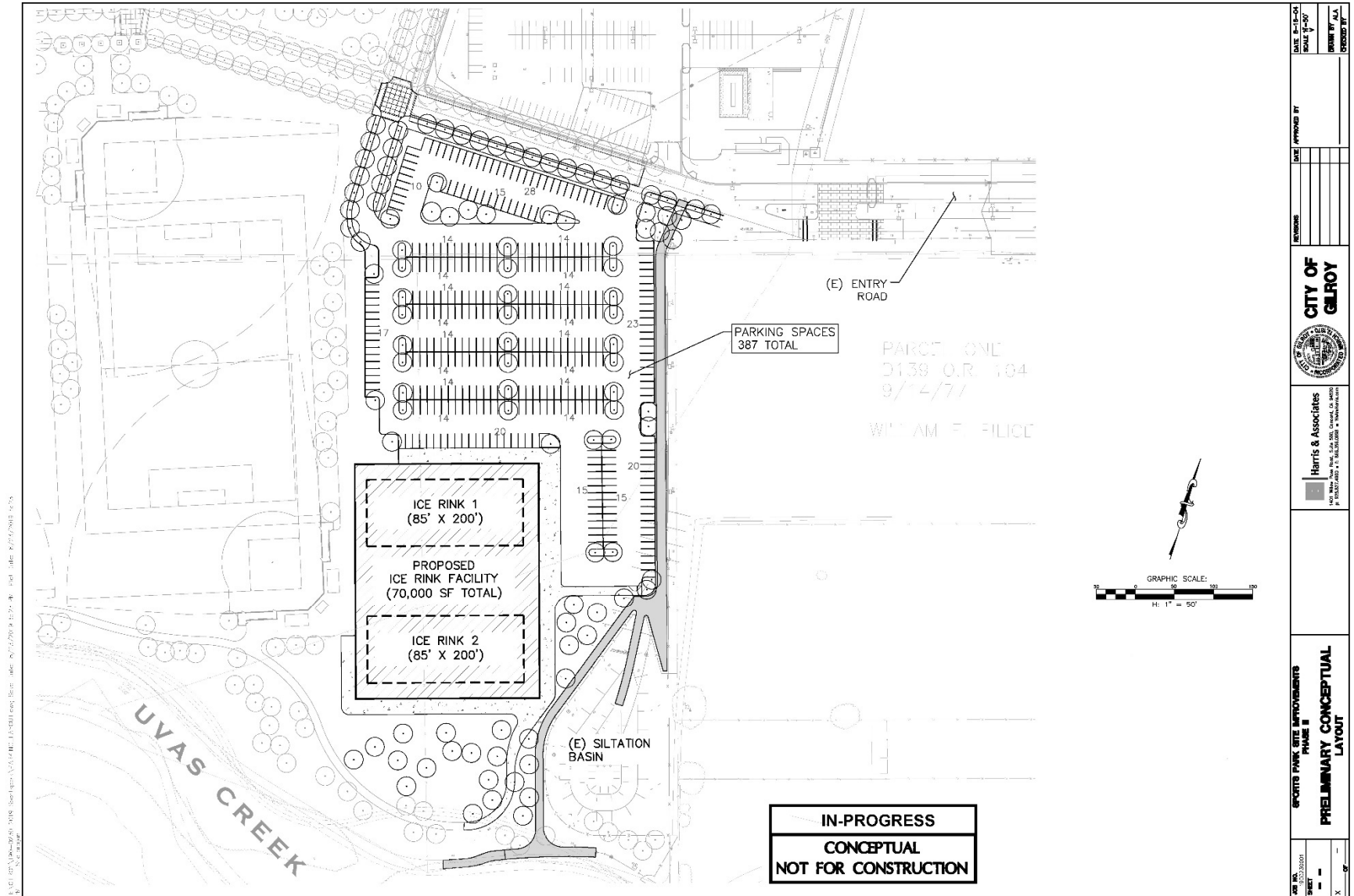


FIGURE 2: PROJECT VICINITY AND AMBIENT NOISE MONITORING SITES

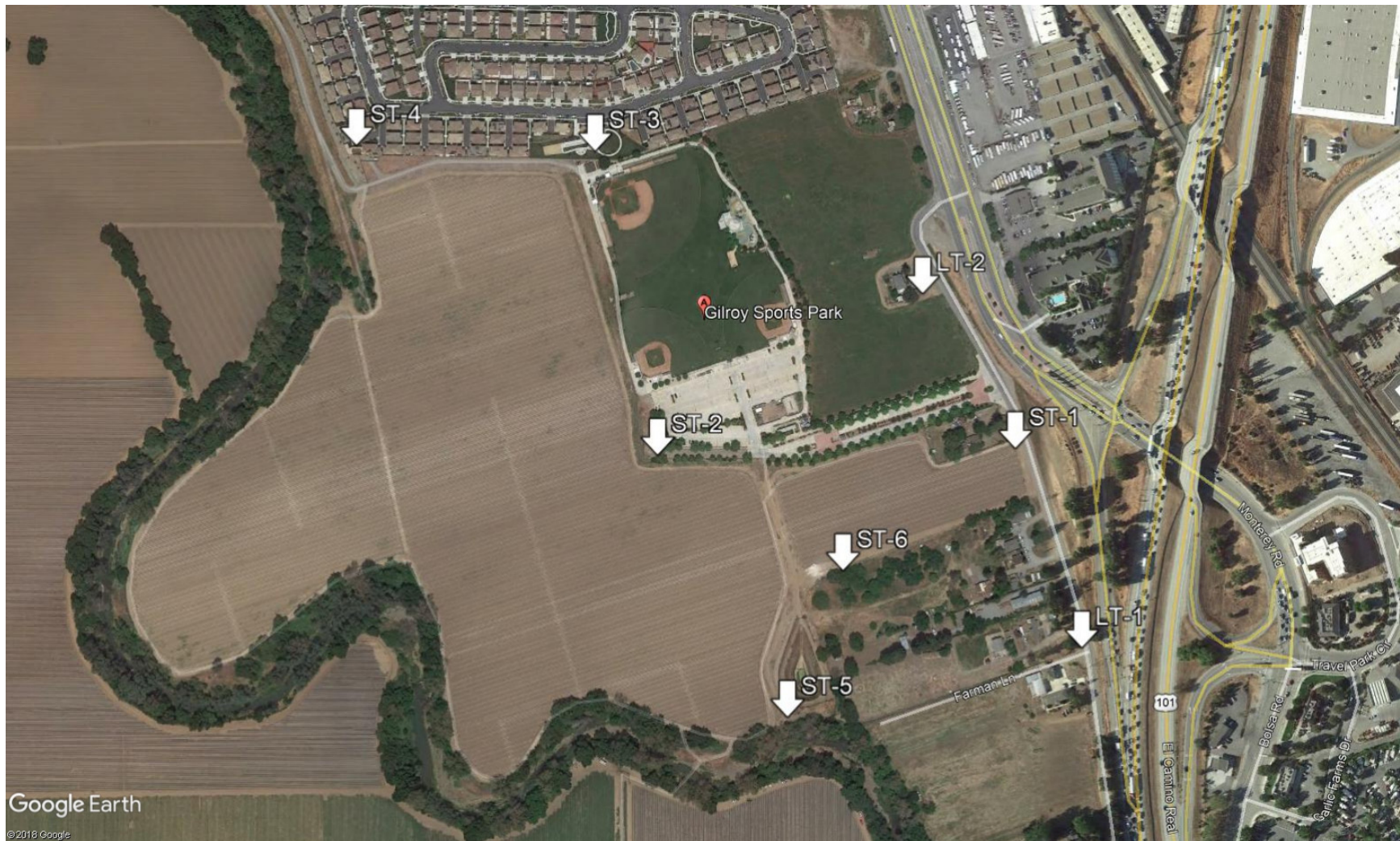


FIGURE 3: HOURLY NOISE LEVELS AT LONG-TERM MONITORING SITE LT-1

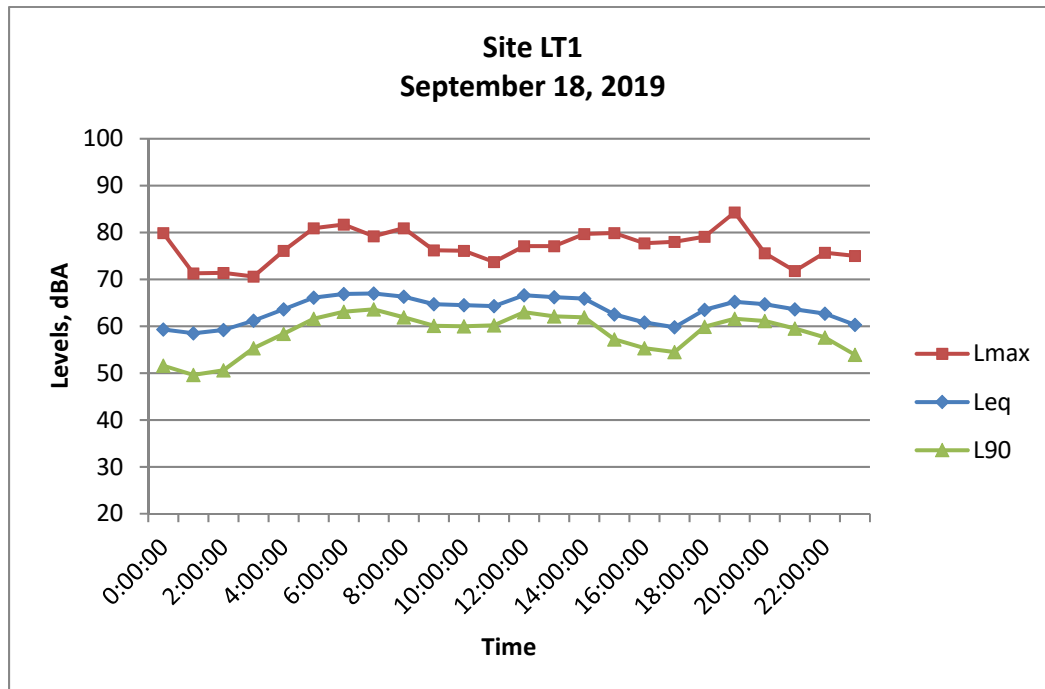
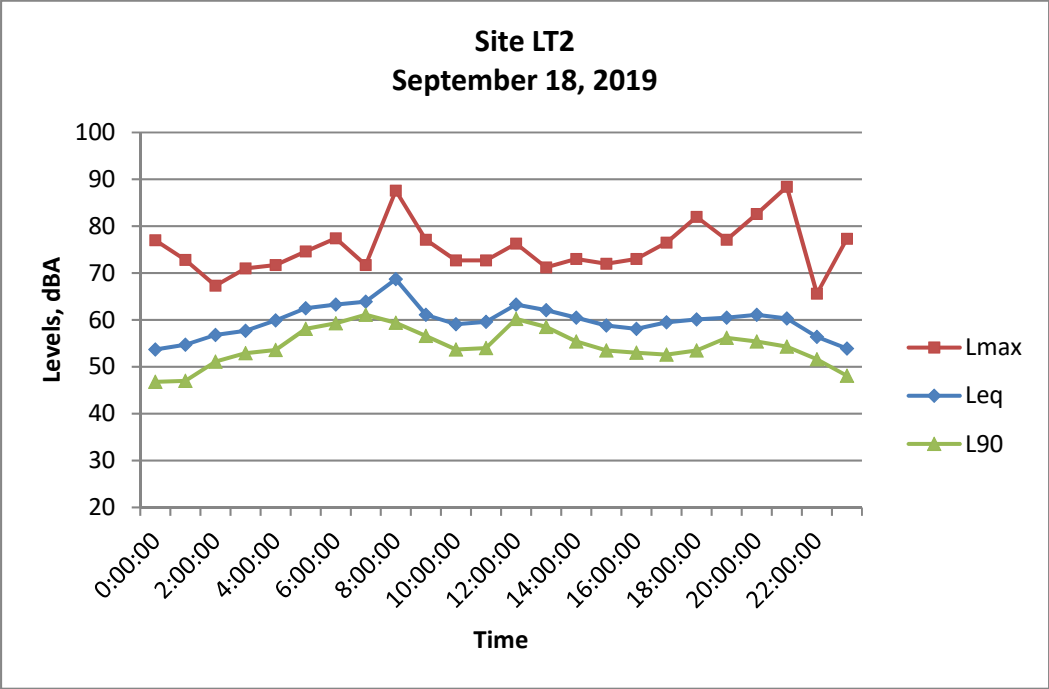


FIGURE 4: HOURLY NOISE LEVELS AT LONG-TERM MONITORING SITE LT-2



APPENDIX A-1

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL:	The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
CNEL:	Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.
DECIBEL, dB:	A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
DNL/L_{dn}:	Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
L_{eq}:	Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.
NOTE:	The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.
L_{max}:	The maximum noise level recorded during a noise event.
L_n:	The sound level exceeded "n" percent of the time during a sample interval (L_{90} , L_{50} , L_{10} , etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

A-2

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS:

Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR):

The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL:

Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

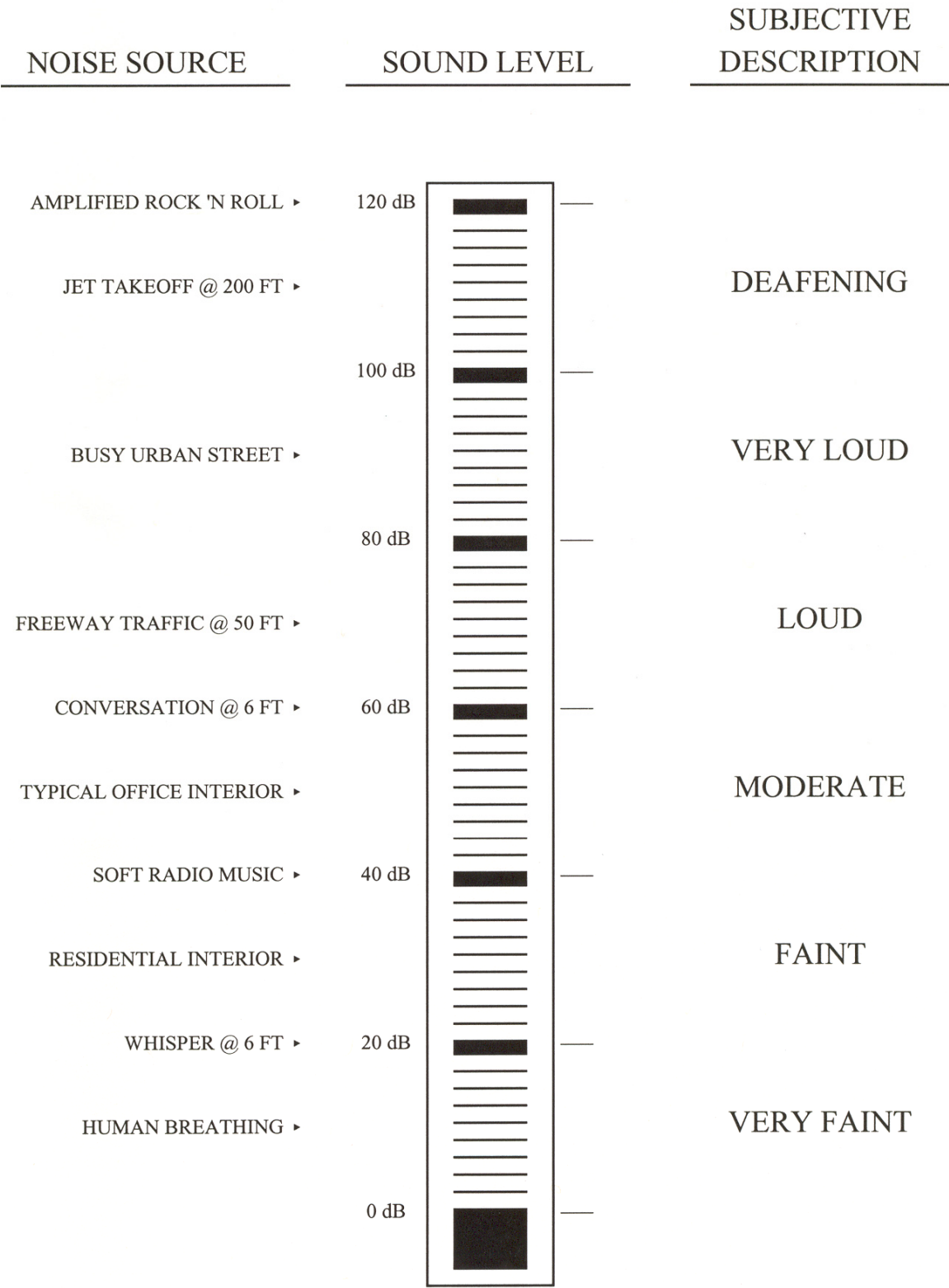
SOUND LEVEL:

The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC):

The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B
EXAMPLES OF SOUND LEVELS



APPENDIX C

TRAFFIC NOISE MODELING CALCULATIONS

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
 October 29, 2019

Project #:
Description:
Ldn/Cnel:
Site Type:

19-035
Existing
Ldn
Soft

Contour Levels (dB)

60

65

70

75

[illegible]

October 29, 2019

Contour Levels (dB)	60	65	70	75				
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[illegible]

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
 October 29, 2019

Project #:	19-035
Description:	Cumulative+ project
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)	60	65	70	75					
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[illegible]