Noise Reports

E

APPENDIX

ACOUSTICAL ANALYSIS

VISTA LUCIA ANNEXATION
GONZALES, CALIFORNIA

WJVA Report No. 20-010

PREPARED FOR

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

PREPARED BY

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NOVEMBER 20, 2020

1. INTRODUCTION

Project Description:

The project is a proposed master planned community called Vista Lucia (VL). Vista Lucia is located on approximately 768 acres within the City of Gonzales' Sphere of Influence (SOI) in Monterey County. The Vista Lucia project would consist of 3,498 residential units, comprised of single family and multi-family residential units, along with commercial, mixed-uses, two proposed elementary school sites, a middle school site, and recreational facilities, including parks, play fields, trails, plazas, community gardens, two town squares, and an almost two-mile long pedestrian promenade system that interconnects neighborhoods and amenities within the two villages of Vista Lucia. In addition, Class 1 bike trails, agricultural landscape buffers, detention and drainage areas, and other open areas will be incorporated into the open space system.

Development of the proposed project would occur over multiple phases, depending on market demand and the ability to provide adequate infrastructure. The proposed project will include requests for various approvals, among which are, but are not limited to, the following: Annexation to the City of Gonzales; a Specific Plan; Amendments to the City Zoning Code and Map; Large Lot Tentative Map(s); a Development Agreement; and multiple Tentative Maps for each phase of development within the Specific Plan Area.

Village One calls for the development of up to 1,864 single-family and multi-family residential units; approximately two acres of retail commercial and mixed-use; a 12-acre elementary school site; and approximately 70 acres of parks, trails, plazas, community gardens, promenades, drainage/detention areas, and other open space features.

Village Two calls for the development of up to 1,634 single family and multi-family residential units; an approximately 6-acre Neighborhood Commercial/Mixed-Use center; a 12-acre elementary school site, an 18-acre middle school site, and approximately 76 acres of parks, trails, promenades, drainage/detention areas, and other open space features.

Environmental Noise Assessment:

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 Land Use Plan[1] provided by the applicant (Figure 1), traffic data provided by Hexagon Transportation Consultants, the City of Gonzales Sphere of Influence Circulation Study[2] and a project site visit on April 22-23, 2020. Revisions to the Land Use Plan, project traffic information 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 examples of sound levels for reference.

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 GONZALES

General Plan

Chapter V (Community Health and Safety) of the Gonzales 2010 General Plan[3] (adopted 2011) establishes land use compatibility noise level criteria in terms of the Day-Night Average Level (L_{dn}/DNL) for transportation noise sources. 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. to 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.

Policy 8.1 (Transportation Noise Sources), states the following:

Maintain a citywide noise environment that achieves noise goals by minimizing to the degree practicable the impact of transportation-related noise.

> Implementing Action HS-8.1.1- Noise-Sensitive Land Uses. *New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future noise levels from transportation noise sources exceeding 60 dB DNL within outdoor activity areas (65 dB DNL is allowable for residential uses in the Downtown Mixed-Use District) unless appropriate noise mitigation measures have been incorporated into the final project design. An exterior exposure of up to 65 dB DNL within outdoor activity areas may be allowed if a good-faith effort has been made to mitigate exterior noise exposure using a practical application of available noise mitigation measures and interior noise exposure due to exterior*

sources will not exceed 45 dB DNL.

Implementing Action HS-8.1.2 - New Transportation Noise. *Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB DNL within outdoor activity areas {65 dB DNL is allowable for residential uses in the Downtown Mixed-Use District) and 45 dB DNL within interior living spaces of existing noise-sensitive land uses.*

The General Plan describes noise-sensitive land uses as:

- Residential Development
- Schools
- Hospitals, Nursing Homes
- Churches
- Libraries

Policy 8.2 of the Gonzales 2010 General Plan establishes land use compatibility criteria in terms of the equivalent sound level (L_{eq}) and maximum (L_{max}) for stationary (non-transportation) noise sources.

Policy 8.2 (Stationary Noise Sources), states the following:

Maintain a citywide noise environment that achieves noise goals by minimizing to the degree practicable the impact of stationary noise sources.

Implementing Action HS-8.2.1- Noise-Sensitive Land Uses. The new development of noise-sensitive land uses shall not be permitted in areas where noise levels from existing stationary noises sources may exceed the noise level standards summarized in Table V-3 (provided as Table I below).

Implementing Action HS-8.2. 2 - New Stationary Noise Sources. Noise created by proposed stationary noise sources, or existing stationary noise sources which undergo modifications that may increase noise levels, shall be mitigated so as not to exceed the noise level standards of Table V-3 within outdoor activity areas of existing or planned noise- sensitive land uses.

TABLE I

NON-TRANSPORTATION NOISE LEVEL STANDARDS, dBA
CITY OF GONZALES

Daytime (7 a.m.-10 p.m.)		Nighttime (10 p.m.-7 a.m.)	
L_{eq}	L_{max}	L_{eq}	L_{max}
55	70	50	65

Source: City of Gonzales 2010 General Plan

Municipal Code

Section 12.112.010 (Commercial and Industrial Performance Standards) of the Gonzales City Code[4] states the following:

> *At the lot line of all uses specified in chapters 12.76 (Highway Commercial), 12.80 (Neighborhood Commercial), 12.84 (Downtown Mixed Use) and 12.88 (Industrial) of this title, the maximum sound generated by any user shall not exceed seventy five (75) dBA when adjacent users are industrial or wholesale users. When adjacent to offices or retail, the sound level shall be limited to seventy (70) dBA. When users are adjacent or contiguous to residential, park or institutional uses, the maximum sound level shall not exceed sixty (60) dBA. Excluded from these standards are occasional sounds generated by temporary construction activities or warning devices.*

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 11.04.050 (Restricted Hours for Construction) of the City of Gonzales Municipal Code provides limitations on hours of construction.

> *Unless specifically exempted by the building official, construction will be restricted to the hours between seven o'clock (7:00) A.M. and seven o'clock (7:00) P.M. The building official may grant an exemption upon his/her determination of an emergency.*

Additional guidance can be provided by section 14-8.02A of the California Department of Transportation (Caltrans) Standard Specifications document which suggests that construction equipment should *not exceed 86 dBA L_{max} at a distance of 50 feet from job site activities from 9 p.m. to 6 a.m.*

Section 12.112.010 (Commercial and Industrial Performance) of the Gonzales City Code states the following in regards to vibration,

> *Vibration: No vibration shall be permitted which is discernible without instruments at the lot line of the establishment or use.*

There are no state or federal standards that specifically address construction vibration. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual[5]. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table II and Table III, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE II

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 III

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 proposed Vista Lucia project site is situated east of Fanoe Road in the northeast section of the City of Gonzales, with Associated Lane forming its northern boundary. The proposed Village One project site encompasses approximately 398 acres, taking up the western portion of the Vista Lucia property. Village Two is comprised of the remaining approximately 370 acres on the eastern portion of the property.

The site is relatively flat, ranging in elevation from approximately 250 feet in the southeast corner to approximately 125 feet in the northwest corner. The land is currently used for agricultural production and related agricultural facilities, irrigation ditches, ponds and unimproved roadways.

Surrounding lands to the north and east are in the County of Monterey and highly modified for existing farming purposes; the land to the north is in an agricultural preserve. Associated Lane, an unimproved farming road on the northern boundary, is shown as a future major roadway in the City General Plan (GP). On the southern side of the property is also an agricultural farming operation; however, this land, D'Arrigo property, is within the City's Sphere of Influence (SOI) and is planned in the City General Plan for future commercial and residential development. To the southwest is a single-family subdivision; to the northwest are farming operations, shown as "Urban Reserve" in the City General Plan. Two existing rural residences are located immediately adjacent to the project property line.

Existing off-site sensitive receptors located adjacent to or in the vicinity of the project site include single-family residential land uses located along Fanoe Road, north of 5th Street. The backyards of these residences abut Fanoe Drive. Additional off-site sensitive receptors include two single-family residential uses located in the vicinity of the proposed Elementary School on Fanoe Road and one single-family residential use located along Iverson Road. The locations of the sensitive receptors are provided as Figure 3. Please note that one receptor marker on Figure 3 is intended to represent the locations of all the sensitive receptors abutting Fanoe Road. The sensitive receptors described above and provided on Figure 3 represent those with potential to be impacted by on-site stationary noise sources, as they are located adjacent to (or in relatively close proximity) to the project site. Additional off-site receptors that could be impacted by project-related increases in traffic noise exposure are discussed in further detail below (section 4.a).

a. Background Noise Level Measurements

Existing noise levels in the project vicinity are dominated by traffic noise along local roadways and noise associated with various agricultural activities as well as small aircraft overflights. Measurements of existing ambient noise levels in the project vicinity were conducted between April 22, 2020 and April 23, 2020. Long-term (24-hour) ambient noise level measurements were conducted at four (4) locations (sites LT-1, LT-2, LT-3 and LT-4). Ambient noise levels were measured for a period of 48 continuous hours at each of the four locations. Site LT-1 was located within the northern portion of the project site, along Iverson Road, in the vicinity of the proposed

Middle School. Site LT-2 was located within the southeast portion of the project site, along Iverson Road. Site LT-3 was located within the western portion project site, along Fanoe Road, in the vicinity of one of the proposed Elementary Schools. Site LT-4 was located withing the northwestern portion of the project site, along Fanoe Road. All four sites were exposed to noise associated with vehicle traffic on roadways as well as agricultural activities.

Measured hourly energy average noise levels (L_{eq}) at site LT-1 ranged from a low of 42.4 dB between 11:00 p.m. and midnight on April 22nd to a high of 65.2 dBA between 6:00 p.m. and 7:00 p.m. on April 23rd. Hourly maximum (L_{max}) noise levels at site LT-1 ranged from 69.1 to 93.6 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 24.0 to 55.1 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 for April 22nd and April 23rd was 61.9 dB L_{dn} and 62.5 dB L_{dn}, respectively. Figure 4 graphically depicts hourly variations in ambient noise levels at site LT-1 for each of the two monitoring days. Figure 5 provides a photograph of measurement site LT-1.

Measured hourly energy average noise levels (L_{eq}) at site LT-2 ranged from a low of 38.2 dB between 2:00 a.m. and 3:00 a.m. on April 222nd to a high of 73.2 dBA between 5:00 p.m. and 6:00 p.m. on April 22nd. Hourly maximum (L_{max}) noise levels at site LT-2 ranged from 51.1 to 87.2 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 32.4 to 63.3 dBA. The measured L_{dn} value at site LT-2 for April 22nd and April 23rd was 64.0 dB L_{dn} and 63.0 dB L_{dn}, respectively. Figure 6 graphically depicts hourly variations in ambient noise levels at site LT-2 for each of the two monitoring days. Figure 7 provides a photograph of measurement site LT-2.

Measured hourly energy average noise levels (L_{eq}) at site LT-3 ranged from a low of 34.7 dB between 3:00 a.m. and 4:00 a.m. on April 22nd to a high of 64.7 dBA between 3:00 p.m. and 4:00 p.m. on April 23rd. Hourly maximum (L_{max}) noise levels at site LT-3 ranged from 45.1 to 88.4 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 29.7 to 60.9 dBA. The measured L_{dn} value at site LT-3 for April 22nd and April 23rd was 58.5 dB L_{dn} and 58.2 dB L_{dn}, respectively. Figure 8 graphically depicts hourly variations in ambient noise levels at site LT-3 for each of the two monitoring days. Figure 9 provides a photograph of measurement site LT-3.

Measured hourly energy average noise levels (L_{eq}) at site LT-4 ranged from a low of 39.6 dB between 3:00 a.m. and 4:00 a.m. on April 22nd to a high of 61.4 dBA between 3:00 a.m. and 4:00 a.m. on April 22nd. Hourly maximum (L_{max}) noise levels at site LT-4 ranged from 55.2 to 88.7 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 35.2 to 55.1 dBA. The measured L_{dn} value at site LT-4 for April 22nd and April 23rd was 57.8 dB L_{dn} and 58.9 dB L_{dn}, respectively. Figure 10 graphically depicts hourly variations in ambient noise levels at site LT-4 for each of the two monitoring days. Figure 11 provides a photograph of measurement site LT-4.

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

Table IV 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 at each of the six sites. Sites ST-1, ST-2 and ST-3 were located along Iverson Road. Sites ST-4, ST-5 and ST-6 were located along Fanoe Road. The overall noise measurement data indicate that noise in the project vicinity is highly influenced by vehicular traffic and noise associated with agricultural activities.

TABLE IV

SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA
VISTA LUCIA, GONZALES
APRIL 22 & 23, 2020

Site	Time	A-Weighted Decibels, dBA							Sources
		L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}	
ST-1	9:12 a.m.	60.4	77.2	69.4	61.1	52.5	76.1	42.1	TR, AG, AC
ST-1	5:25 p.m.	62.5	81.5	73.1	62.7	49.8	47.0	43.5	TR, AC
ST-2	9:35 a.m.	66.1	80.2	74.5	71.3	60.1	51.4	42.7	TR, AG
ST-2	5:46 p.m.	66.7	81.2	77.0	72.7	61.0	50.6	43.8	TR, AG
ST-3	9:57 a.m.	62.1	84.5	72.1	63.5	52.0	48.8	44.7	TR, AG, AC
ST-3	6:03 p.m.	58.8	77.3	66.7	58.9	48.0	45.4	42.3	TR, AG
ST-4	10:18 a.m.	61.4	81.5	66.6	65.1	58.1	52.5	50.0	TR, B, D
ST-4	6:25 p.m.	57.7	67.4	66.4	64.0	56.6	51.8	47.6	TR, AC
ST-5	10:40 a.m.	60.3	71.1	67.4	61.0	53.1	60.1	48.8	TR, V
ST-5	6:45 p.m.	57.7	69.0	68.2	63.8	52.3	45.1	41.9	TR, V, D
ST-6	11:00 a.m.	56.9	78.2	65.4	56.4	52.7	50.8	47.7	TR, AG
ST-6	7:05 p.m.	52.7	69.0	62.1	52.0	49.8	48.5	46.2	TR

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

4. NOISE IMPACTS TO OFF-SITE SENSITIVE RECEPTORS, AND MITIGATION MEASURES

a. Project Traffic Noise Impacts on Existing Noise-Sensitive Land Uses Outside Project Site (Less Than Significant)

WJVA utilized the FHWA Traffic Noise Model[6] 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.

Average Daily Traffic (ADT) volumes for the analyzed receptor locations were determined with assistance from Hexagon Transportations Consultants, Inc. WJVA applied the existing conditions and Cumulative (General Plan Buildout) conditions traffic volumes provided in the *City of Gonzales Sphere of Influence Circulation Study* (SOI)[5]. Project specific contributions were determined using the SOI study and modeled project-specific volumes provided by Hexagon Transportation Consultants using the City of Gonzales traffic model. The City of Gonzales maintains its own citywide travel demand model (the model) that is built on the Association of Monterey Bay Area Governments (AMBAG) regional travel demand model. The citywide model was last updated as part of the SOI study and included updated year 2040 land uses and roadway networks within the Gonzales SOI. The model serves as the primary forecasting tool for the City of Gonzales. It should be noted that the input data of the above-described modeled traffic volumes are based on the circulation network assumed in the traffic model (and General Plan) but the concept land use plan shows proposed modifications of that circulation (roadway) network.

The above-described ADT traffic volumes were applied by WJVA to model existing conditions traffic noise exposure levels, existing plus project conditions traffic noise exposure levels, cumulative conditions traffic noise exposure levels, as well as to determine the project contribution to cumulative conditions.

The percentage of trucks on US 101 in the project vicinity was obtained from Caltrans. The percentage of trucks on the remaining analyzed roadways was provided by Hexagon Traffic Consultants. The day/night distribution of traffic on local roadways used for modeling was approximated based upon data provided in the SOI Study. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C.

Traffic noise exposure levels for specific scenarios were calculated based upon the FHWA Model and the above-described model inputs and assumptions. Project-related significant impacts

would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors. For the purpose of this analysis a significant impact was also assumed to occur if traffic noise levels were to increase by 3 dB at sensitive receptor locations where noise levels already exceed the City's applicable noise level standards (without the project), as 3 dB generally represents the threshold of perception in change for the human ear.

The City's exterior noise level standard for residential land uses is 60 dB L_{dn} (65 dB L_{dn} is allowable for residential uses in the Downtown Mixed-Use District). Traffic noise was modeled at nine (9) receptor locations. The nine modeled receptors are located at roadway setback distances representative of the sensitive receptors (residences) along each analyzed roadway segment. Please note, receptor R-6 is located in the Downtown Mixed-Use District. The receptor locations are described below and provided graphically on Figure 12.

- R-1: Residential land use located approximately 200 feet from the centerline of US 101.
- R-2: Residential land use located approximately 150 feet from the centerline of US 101.
- R-3: Residential land use located approximately 125 feet from the centerline of Alta St.
- R-4: Residential land use located approximately 50 feet from the centerline of Fanoe Rd.
- R-5: Residential land use located approximately 55 feet from the centerline of Herold Pkwy.
- R-6: Residential land use located approximately 75 feet from the centerline of 5th St.
- R-7: Residential land use located approximately 475 feet from the centerline of Gloria Rd.
- R-8: Residential land use located approximately 50 feet from the centerline of Iverson Rd.
- R-9: Residential land use located approximately 400 feet from the centerline of Iverson Rd.

Existing Conditions

Table V provides Existing and Existing Plus Project traffic noise exposure levels at the nine analyzed receptor locations. The receptor locations are representative of existing residential land uses located along the analyzed roadway segments. Receptor locations R-1 through R-5 have existing acoustical shielding provided by existing sound walls (R-1, R-2, R-4 and R-5) or residential structures (R-3), and a conservative offset (-5 dB) was applied to more accurately reflect noise levels within the outdoor activity areas of these receptor locations. Noise levels described in Table V include the offset provided by the existing acoustical shielding at these receptor locations.

TABLE V

PROJECT-RELATED INCREASES IN TRAFFIC NOISE, dB, L_{dn}
VISTA LUCIA ANNEXATION, GONZALES
EXISTING CONDITIONS

Modeled Receptor	Existing	Existing Plus Project	Change (Maximum)	Significant Impact?
R-1	65	65	0	No
R-2	67	67	0	No
R-3	56	56	0	No
R-4	51	57	+6	No
R-5	51	51	0	No
R-6[1]	60	61	+1	No
R-7	49	49	0	No
R-8	50	50	0	No
R-9	37	37	0	No

[1]Located in the Downtown Mixed-Use District, 65 dB L_{dn} standard applies
Source: WJV Acoustics, Inc.
Kimley Horn
Hexagon Traffic Consultants, Inc.
Caltrans

Reference to Table V indicates that project-related traffic would not result in noise levels at any sensitive receptors to exceed the City's noise level standard, nor result in an increase of 3 dB in any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project.

It is important to note that project buildout would likely occur over several years (possibly decades), and as such project-related noise increases would not be realized for numerous years. While the exact buildout timeline is uncertain, the increases described in Table V would not occur immediately.

Cumulative Conditions

Traffic volumes modeled for Cumulative Conditions were derived from the SOI Study (which included a form of the Vista Lucia Project as well as two other development projects), with project related traffic volumes adjusted to reflect current proposed project land uses and traffic data associated with General Plan buildout conditions.

Table VI provides Cumulative traffic noise exposure levels at the nine analyzed representative receptor locations, and also provides what the project contribution would be to Cumulative (2040, General Plan Buildout) conditions.

TABLE VI

PROJECT CONTRIBUTION TO CUMULATIVE TRAFFIC NOISE, dB, L_{dn}
VISTA LUCIA ANNEXATION, GONZALES
CUMULATIVE CONDITIONS

Modeled Receptor	Cumulative Conditions Without Project Contribution	Cumulative Conditions	Project Contribution	Significant Impact?
R-1	67	66	-1	No
R-2	68	68	0	No
R-3	57	57	0	No
R-4	56	58	+2	No
R-5	56	56	0	No
R-6[1]	62	62	0	No
R-7	58	58	0	No
R-8	59	58	-1	No
R-9	41	41	0	No

[1]Located in the Downtown Mixed-Use District, 65 dB L_{dn} standard applies
Source: WJV Acoustics, Inc.
Kimley Horn
Hexagon Traffic Consultants, Inc.
Caltrans

Reference to Table VI indicates that the project's contribution to Cumulative traffic noise exposure levels at the modeled representative receptor locations would not result in noise levels to exceed the City's noise level standard, nor result in an increase of 3 dB in any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project. Consequently, the project contribution to cumulative noise levels would be less than considerable and the project would not have a significant cumulative impact.

b. Proposed Impacts From Operational On-Site Sources (No Impact)

The project would include land uses identified as Neighborhood Commercial Mixed-Use designation. While a wide variety of noise sources can be associated with commercial land use designations, the land uses identified for the project as Neighborhood Commercial Mixed-Use are not located in the vicinity of any existing off-site receptors (see Figure 1). Noise levels associated with these land uses and their potential impacts on proposed on-site receptors are discussed below (Section 5.b)

c. Noise from Construction (Less Than Significant With Mitigation)

Construction noise would occur at various locations within and near the project site through the buildout period and at locations where off-site infrastructure improvements may be required. Existing sensitive receptors could be located as close as 100 feet from construction activities (see

receptor locations provided on Figure 3). Table VII provides typical construction-related noise levels at distances of 100 feet, 200 feet, and 300 feet.

Construction noise is not considered to be a significant impact if construction is limited to the allowed hours and construction equipment is adequately maintained and muffled. Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. The City of Gonzales limits hours of construction to occur only between the hours of 7:00 a.m. to 7:00 p.m. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.

TABLE VII

TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA

Type of Equipment	100 Ft.	200 Ft.	300 Ft.
Concrete Saw	84	78	74
Crane	75	69	65
Excavator	75	69	65
Front End Loader	73	67	63
Jackhammer	83	77	73
Paver	71	65	61
Pneumatic Tools	79	73	69
Dozer	76	70	66
Rollers	74	68	64
Trucks	80	72	70
Pumps	74	68	64
Scrapers	81	75	71
Portable Generators	74	68	64
Backhoe	80	74	70
Grader	80	74	70

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

Potential Impact:
A noise impact could occur if construction activities do not incorporate appropriate mitigation measures and best management practices.

Mitigation Measures:
Noise levels associated with construction activities may be effectively mitigated by incorporating noise mitigation measures and appropriate best management practices. The following mitigation measures and best management practices should be applied during periods of project construction.

- Per the City of Gonzales Municipal Code, construction activities should not occur outside the hours of 7:00 a.m. to 7:00 p.m.

- All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.

- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.

- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

- Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and providing the contact phone number of a designated noise disturbance coordinator.

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 with construction or operation of the proposed project. 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 100 feet and 300 feet are summarized by Table VIII. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided above in Table II and Table III.

TABLE VIII

TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

	PPV (in/sec)	
Equipment	**@ 100´**	**@ 300´**
Bulldozer (Large)	0.011	0.006
Bulldozer (Small)	0.0004	0.00019
Loaded Truck	0.01	0.005
Jackhammer	0.005	0.002
Vibratory Roller	.03	0.013
Caisson Drilling	.01	0.006

Source: *Caltrans*

After full project build out, it is not expected that ongoing 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. Additional mitigation is not required.

5. NOISE IMPACTS TO PROPOSED ON-SITE SENSITIVE RECEPTORS, AND MITIGATION MEASURES

a. Traffic Noise Impacts To Proposed On-Site Receptors (Less Than Significant With Mitigation)

The City of Gonzales General Plan states "*New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future noise levels from transportation noise sources exceeding 60 dB L_{dn} within outdoor activity areas unless appropriate noise mitigation measures have been incorporated into the final project design. An exterior exposure of up to 65 dB L_{dn} within outdoor activity areas may be allowed if a good-faith effort has been made to mitigate exterior noise exposure using a practical application of available noise mitigation measures and interior noise exposure due to exterior sources will not exceed 45 dB L_{dn}".*

The proposed project includes sensitive receptors (residential land uses) that could be impacted by traffic noise exposure adjacent to arterial roadways. Such arterial roadways include Fanoe Road, Associated Lane (Vista Lucia Parkway), and Iverson Road. WJVA used the above-described FHWA traffic noise model and traffic noise modeling assumptions to determine the distances from the center of the roadways to the 60 dB L_{dn} and 65 dB L_{dn} noise exposure contours. Table IX provides the distances from the center of the arterial roadways adjacent to (and within) the project site to the 60 dB L_{dn} and 65 dB L_{dn} noise exposure contours. Table IX provides the contour distances for Cumulative conditions as they represent a worst-case assessment of noise exposure at proposed sensitive receptor locations.

TABLE IX

DISTANCES TO TRAFFIC NOISE CONTOURS
VISTA LUCIA ANNEXATION, GONZALES
CUMULATIVE CONDITIONS

Roadway Segment (Description)	Distance (feet) to 60 dB L_{dn}	Distance (feet) to 65 dB L_{dn}
Fanoe Rd (north of 5th St/Johnson Canyon Rd)	80	37
Associated Ln/Vista Lucia Pkwy (east of Fanoe Rd)	95	44
Iverson Rd (north of Johnson Cyn Rd)	25	11

Source: WJV Acoustics, Inc.
Kimley Horn
Hexagon Traffic Consultants, Inc.

Potential Impact:
A noise impact would occur if the outdoor activity areas of proposed sensitive receptors are located within the cumulative conditions 60 dB L_{dn} traffic noise contours. Based upon the conceptual Land Use Plan (Figure 1), residential land uses are proposed adjacent to Fanoe Road, Associated Lane (Vista Lucia Parkway) and Iverson Road. If the outdoor activity areas of these

residential land uses are located along these roadways within the 60 dB L_{dn} contour (as described in Table IX), an impact would be expected to occur. Such impacts could occur along Fanoe Road and Associated Lane (Vista Lucia Parkway).

Mitigation Measures:
Noise levels from transportation noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks and the construction of sound walls.

When specific uses within the study area are proposed that could result in a noise-related conflict between transportation noise sources and sensitive receptors proposed adjacent to arterial roadways, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the City's noise standards. The acoustical analysis should be the responsibility of the project applicant.

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

The project would include land uses identified as Neighborhood Commercial Mixed-Use designation. A wide variety of noise sources can be associated with commercial land use designations. The noise levels produced by such sources can also be highly variable and could potentially impact proposed on-site sensitive receptors. From the perspective of the City's noise standards, noise sources not associated with transportation sources are considered stationary noise sources. Typical examples of stationary noise sources include:

- Fans and blowers
- HVAC units
- Truck deliveries
- Loading Docks
- Compactors

Potential Impact:
Noise levels from new stationary noise sources cannot be predicted with any certainty at this time since specific uses have not yet been proposed and the locations of stationary noise sources relative to the locations of new noise sensitive uses are not known. However, under some circumstances there is a potential for such uses exceed the City's noise standards for stationary noise sources at the locations of sensitive receptors.

Mitigation Measures:
Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing

characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures.

When specific uses within the study area are proposed (and their locations are defined) that could result in a noise-related conflict between a commercial or other stationary noise source and project proposed sensitive receptors, an acoustical analysis should be required that quantifies project-related noise levels and recommends appropriate mitigation measures to achieve compliance with the City's noise standards. The acoustical analysis should be the responsibility of the project applicant.

c. Noise Impacts from proposed School Land Uses (Less Than Significant With Mitigation)

Sources of operational noise associated with school land uses could include mechanical equipment (trash compactors, HVAC, etc.), vehicle and bus movements and noise associated with general school activities (children at play). Where such activities would occur within the three proposed school sites has not been determined at this time.

Mechanical Equipment

Detailed information about the types and locations of air conditioners and trash compactors potentially associated with the school land uses was not available at the time this report was prepared. Based upon noise studies conducted by WJVA for other projects, the maximum noise level produced by a typical un-enclosed trash compactor (Hydra-Fab Model 1200) is approximately 74 dBA at a distance of 10 feet from the equipment. Since trash compactors operate intermittently, the City's 70 dB L_{max} daytime noise level standard would apply. In order to not exceed this noise level standard at proposed sensitive receptor locations, any trash compactor should be located at least twenty (20) feet from any residential land use or be located within an appropriate enclosure.

It can be assumed that the project would include roof-mounted or ground level HVAC units on school buildings. Noise levels associated with air conditioner units typically range from approximately 55-75 dB at a distance of ten (10) feet from the unit. Noise levels associated with ground level HVAC units could potentially exceed the City's stationary noise standard of 55 dB L_{eq} if new proposed residential land uses are located in close proximity to the HVAC units and/or the HVAC units are not adequately shielded. If an unshielded HVAC unit is located within 100 feet from adjacent residential land uses, associated noise levels could exceed the City's stationary noise level standards.

Bus and Vehicle Movements

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. The noise levels associated with these activities cannot be precisely defined due to variables such as the number of parking movements, type of vehicles, 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.

File data for slowly moving heavy trucks and buses indicate that the maximum noise level (L_{max}) is approximately 70-75 dB at 50 feet. Bus movements that do not occur on a public roadway are considered to be a stationary noise source.

The locations of school parking lots and bus access and loading areas were not known at the time of this analysis. If bus movements were to occur within ninety (90) feet of outdoor activity areas of residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes), associated noise levels could exceed the City's stationary noise level standards at residential land uses.

School Activities
Noise levels from typical school activities are generally limited to noise associated with children at play (yelling, screaming, laughing, etc.) and school bells and alarms. WJVA previously measured noise levels associated with such school activities at an existing elementary school in Fresno County. For that study, noise measurements were conducted within a residential area across the street from the bus loading, student drop-off and a common play area at the school. Noise measurements were conducted at approximately 8:00 a.m. when students were arriving at school by bus or car and were gathering in common play areas before the start of school. Measured noise levels from students gathering or playing at distances of approximately 50-225 feet from the microphone were in the range of 53-63 dB. Noise levels associated with school bells and alarms can vary widely, but are typically in the range of approximately 80-90 dB (or greater) at a distance of twenty feet from the source.

Noise levels from school activities would be intermittent and mostly occur during periods when students are arriving at school in the morning or leaving school in the afternoon, and during periods of recess or physical education classes on the play fields, and could be audible at nearby residential land uses. School bells or alarms could exceed noise level standards at nearby proposed residential areas. While not explicitly stated in the City of Gonzales Municipal Code, noise levels associated with school bells and alarms are often exempt from noise standards. However, noise levels associated with school bells could exceed the City's 75 dB L_{max} noise level standard at proposed residential land uses.

Potential Impact:
If proposed, noise levels associated with ground-level HVAC units could exceed the City's daytime noise level standard of 55 dB L_{eq} if located within 100 feet of outdoor activity areas of proposed residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes).

Mitigation Measures:
Locate any ground-level HVAC unit at distance of greater than 100 feet from new proposed residential land uses or provided an adequate equipment enclosure to reduce noise levels to below the City's noise level standard for stationary noise sources.

Potential Impact:
If bus movements were to occur within ninety (90) feet of outdoor activity areas of residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes), associated noise levels could exceed the City's stationary maximum noise level standard of 70 dB L_{max} at residential land uses.

Mitigation Measures:
Locate bus loading areas at distances of ninety feet or greater from outdoor activity areas of proposed residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes).

Potential Impact:
Noise levels associated with school bells and alarms could exceed the City's maximum noise level standard of 70 dB L_{max} at proposed residential land uses. Noise levels associated with such bells and alarms can vary widely, and cannot be precisely quantified at this time. The type, location, direction and level of shielding were not known at the time of this analysis.

Mitigation Measures:
Noise levels associated with school bells and alarms can potentially be mitigated by thoughtful placement or reduction of volume levels. However, safety and code requirements may override such considerations. When school construction details are known (and the locations of noise-producing features such as bells and alarms are defined), an evaluation of associated noise levels should occur to assess potential impacts and mitigation measures to ensure City noise standards are not exceeded at adjacent sensitive receptors.

d. Noise Impacts from Nearby Airports or Airstrips (No Impact)

The Project site is not located within two miles of a public airport or private airstrip.

6. IMPACT SUMMARY

This impact summary addresses only the noise impacts determined to be "potentially significant" and summarizes the mitigation measures that would be required to reduce noise levels to a "less than significant" level or states that the impact may be significant an unavoidable. Potential impacts and correlating mitigation measures are described in detail above, and summarized below.

- A noise impact would occur if new proposed sensitive receptors (residential land uses) are located within the cumulative 60 dB L_{dn} traffic noise contours. Based upon the conceptual Land Use Plan (Figure 1) and the distances to the 60 dB L_{dn} contour (Table IX), noise impacts could occur along Fanoe Road and Associated Lane (Vista Lucia Parkway). Noise levels from transportation noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks and the construction of berms and sound walls. **This impact is considered less than significant with mitigation.**

- A noise impact could occur if construction activities do not incorporate appropriate mitigation measures and best management practices. Noise levels associated with construction activities may be effectively mitigated by incorporating noise mitigation measures and appropriate best management practices. The following mitigation measures and best management practices should be applied during periods of project construction. **This impact is considered less than significant with mitigation.**

    - Per the City of Gonzales Municipal Code, construction activities should not occur outside the hours of 7:00 a.m. to 7:00 p.m.

    - All construction equipment shall be properly maintained and muffled as to minimize noise generation at the source.

    - Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.

    - All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from any noise-sensitive land uses.

    - Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

- Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and providing a contact phone number of a designated noise disturbance coordinator.

- Noise levels from new stationary noise sources associated with proposed Neighborhood Commercial Mixed-Use land uses within the project site could potentially impact new proposed sensitive receptors (residential land uses). Noise levels from new stationary noise sources may be effectively mitigated by incorporating noise mitigation measures into the project design that consider the geographical relationship between the noise sources of concern and potential receptors, the noise-producing characteristics of the sources and the path of transmission between noise sources and sensitive receptors. Options for noise mitigation include the use of building setbacks, the construction of sound walls and the use of noise source equipment enclosures. **This impact is considered less than significant with mitigation.**

- If proposed at the school land uses, noise levels associated with ground-level HVAC units could exceed the City's daytime noise level standard of 55 dB L_{eq} if located within 100 feet of outdoor activity areas of proposed residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes). Noise levels may be effectively mitigated by locating any ground-level HVAC units at distance of greater than 100 feet from new proposed residential land uses or adequate equipment enclosures should be provided to reduce noise levels to below the City's noise level standard for stationary noise sources. **This impact is considered less than significant with mitigation.**

- If bus movements were to occur within ninety (90) feet of outdoor activity areas of residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes), associated noise levels could exceed the City's maximum noise level standard of 70 dB L_{max} at residential land uses. Noise levels may be effectively mitigated by locating bus loading areas at distances of ninety feet or greater from outdoor activity areas of proposed residential land uses (outdoor common use areas and individual patios and balconies for multi-family homes and backyards of single-family homes). **This impact is considered less than significant with mitigation.**

- Noise levels associated with school bells and alarms could exceed the City's maximum noise level standard of 70 dB L_{max} at proposed residential land uses. Noise levels associated with such bells can vary widely, and cannot be precisely quantified at this time. Noise levels associated with school bells and alarms can potentially be mitigated by thoughtful placement or reduction of volume levels. When school construction details are known (and the locations of noise-producing features such as bells and alarms are defined), an evaluation of associated noise levels should occur to assess potential impacts and mitigation measures to ensure City noise standards are not exceeded at adjacent sensitive receptors. **This impact is considered less than significant with mitigation.**

7. SOURCES CONSULTED

1. Vista Lucia Land Use Plan, February 21, 2020.

2. Kimley Horn, *City of Gonzales Sphere of Influence Circulation Study Transportation Impact Analysis Final Report,* November, 2019

3. Gonzales 2010 General Plan, January, 2011.

4. Gonzales City Code, December, 2019.

5. California Department of Transportation, *Transportation and Construction Vibration Guidance Manual,* September 2013.

6. Federal Highway Administration, *Traffic Noise Model, Version 2.5,* April 14, 2004

FIGURE 1: PROJECT LAND USE PLAN

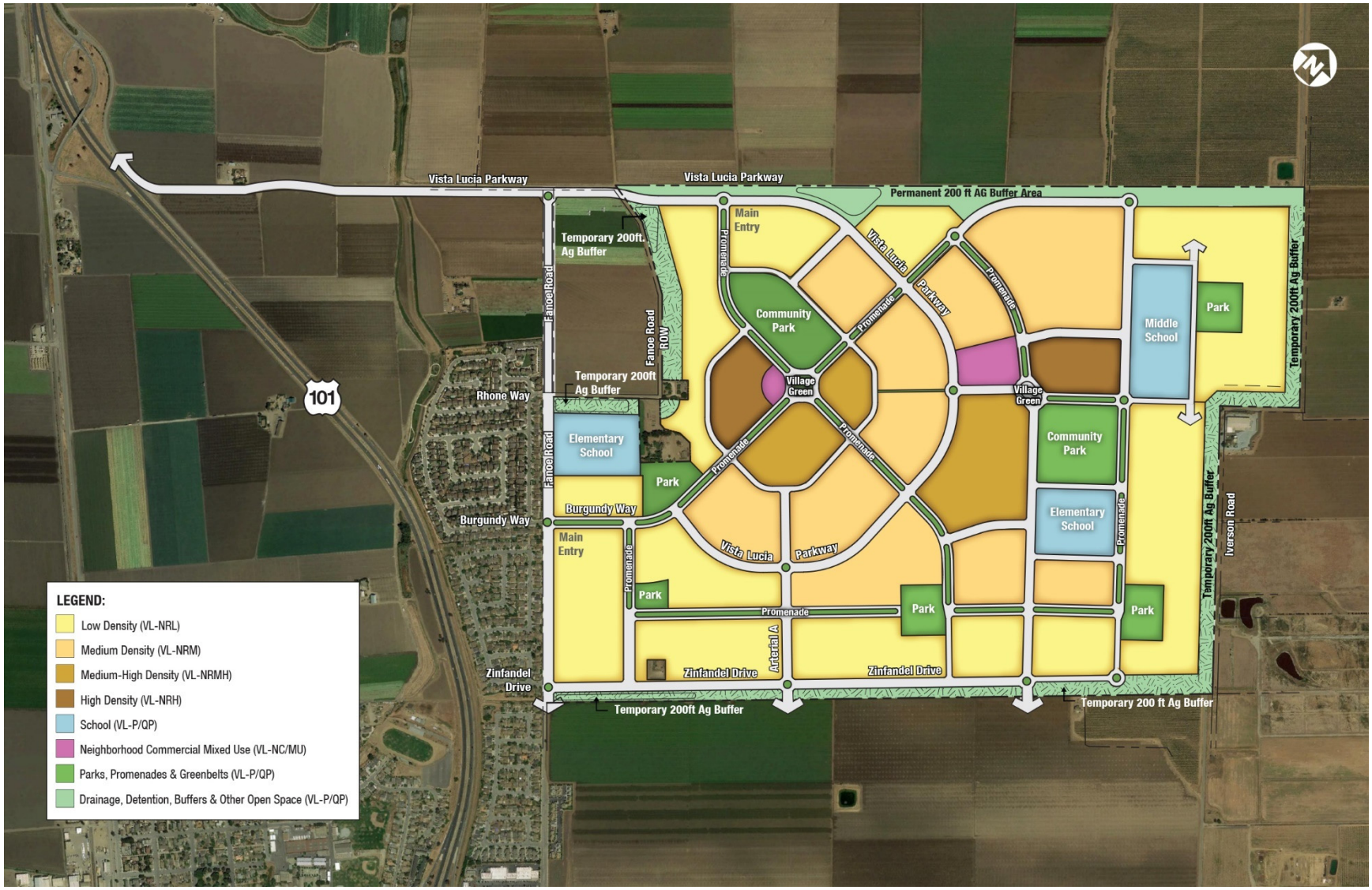
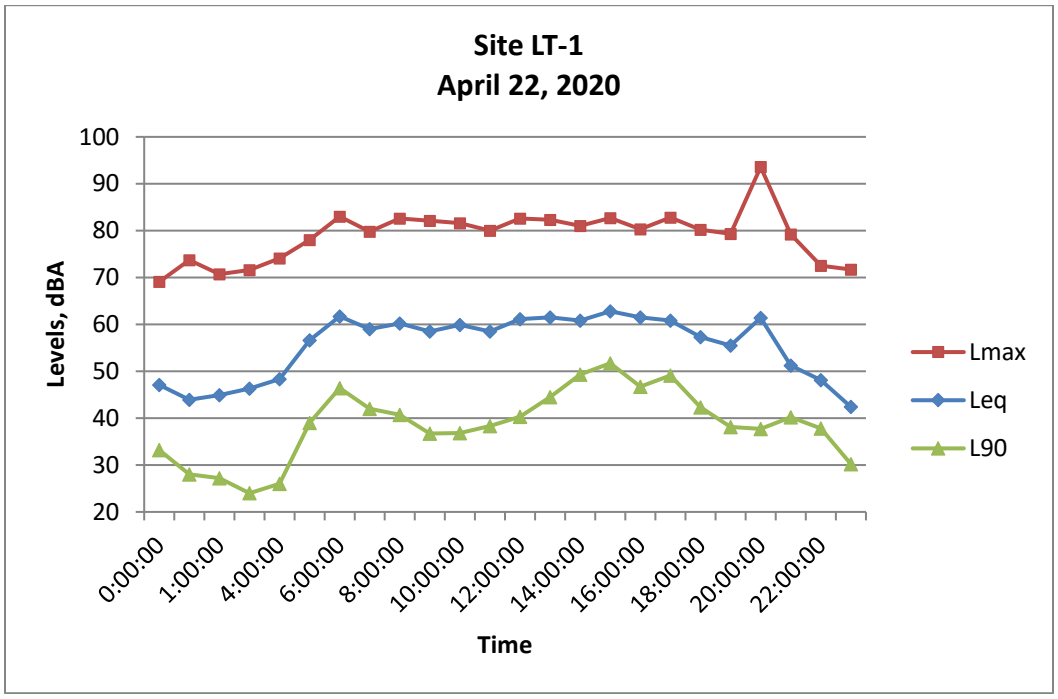


FIGURE 2: PROJECT VICINITY AND AMBIENT NOISE MONITORING SITES

FIGURE 3: LOCATIONS OF EXISTING SENSITIVE RECEPTORS (RESIDENTIAL) ADJACENT TO PROJECT SITE

FIGURE 4: HOURLY NOISE LEVELS AT SITE LT-1



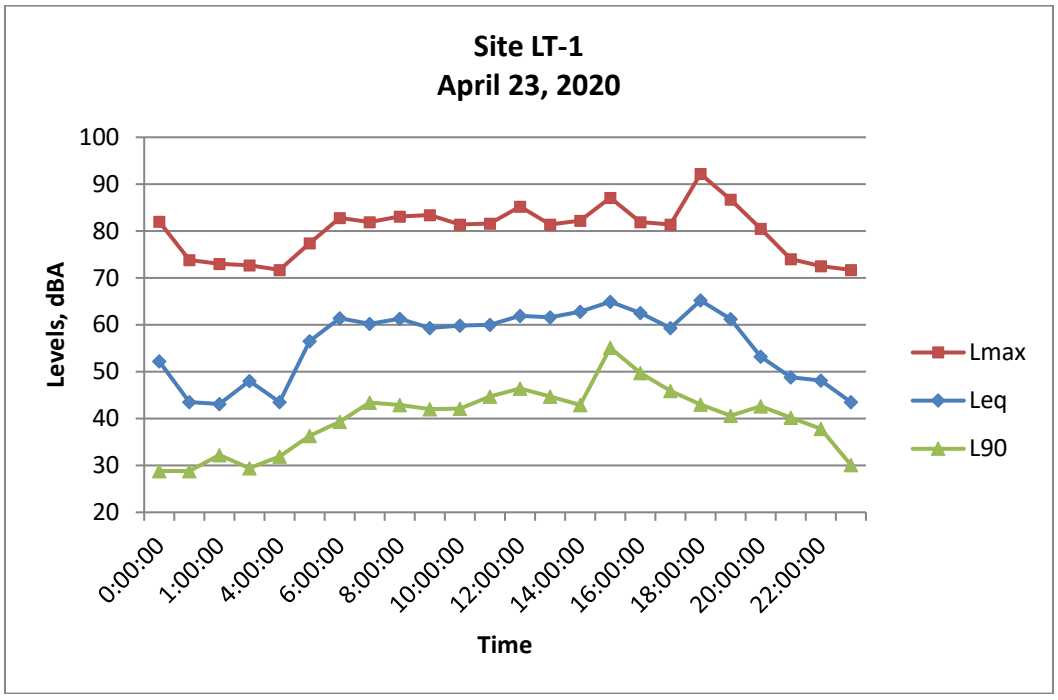
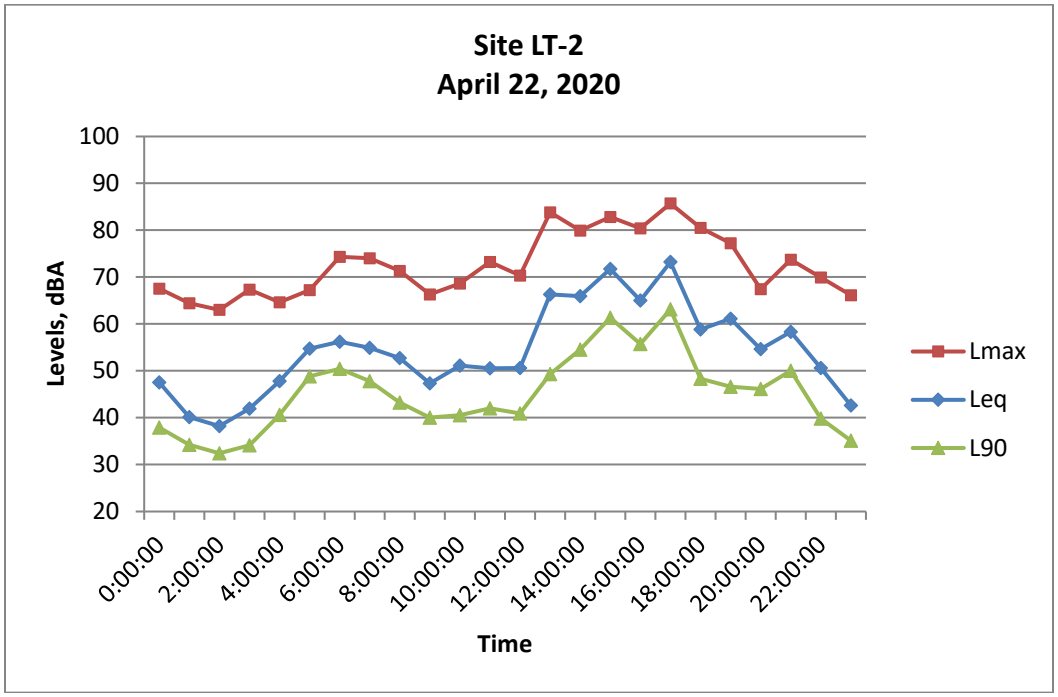


FIGURE 5: NOISE MEASUREMENT SITE LT-1

FIGURE 6: HOURLY NOISE LEVELS AT SITE LT-2



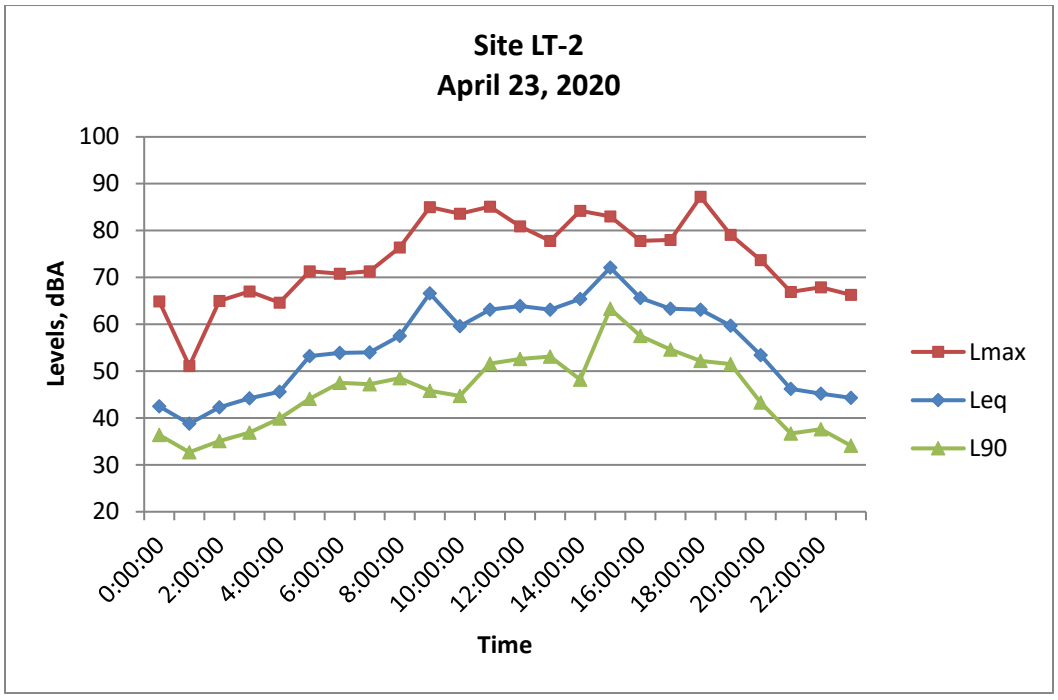
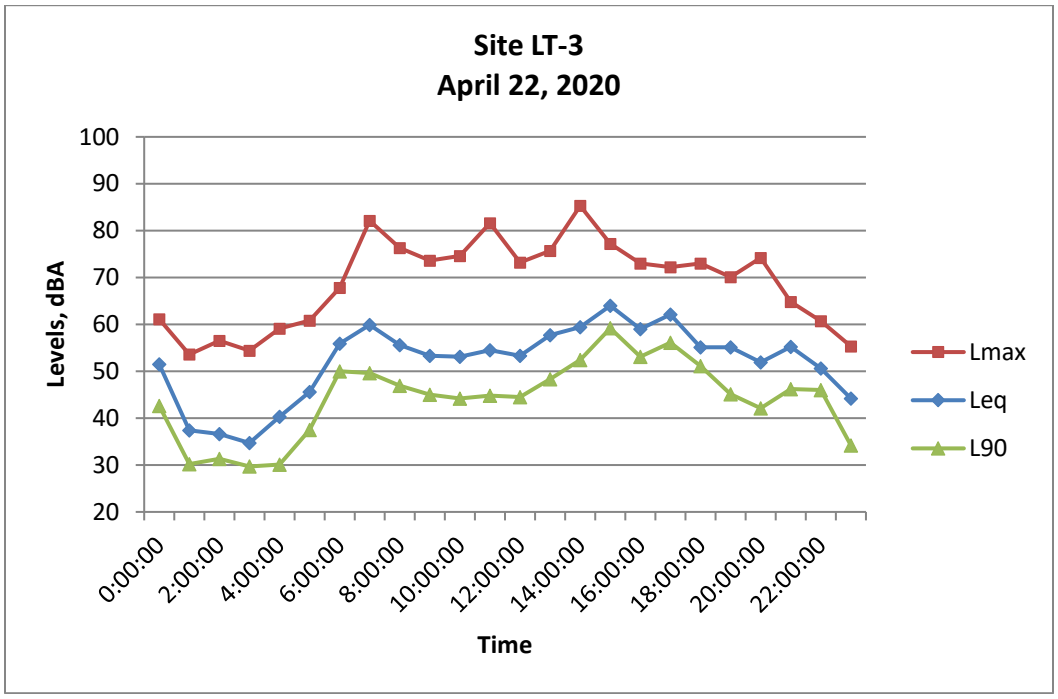


FIGURE 7: NOISE MEASUREMENT SITE LT-2

FIGURE 8: HOURLY NOISE LEVELS AT SITE LT-3



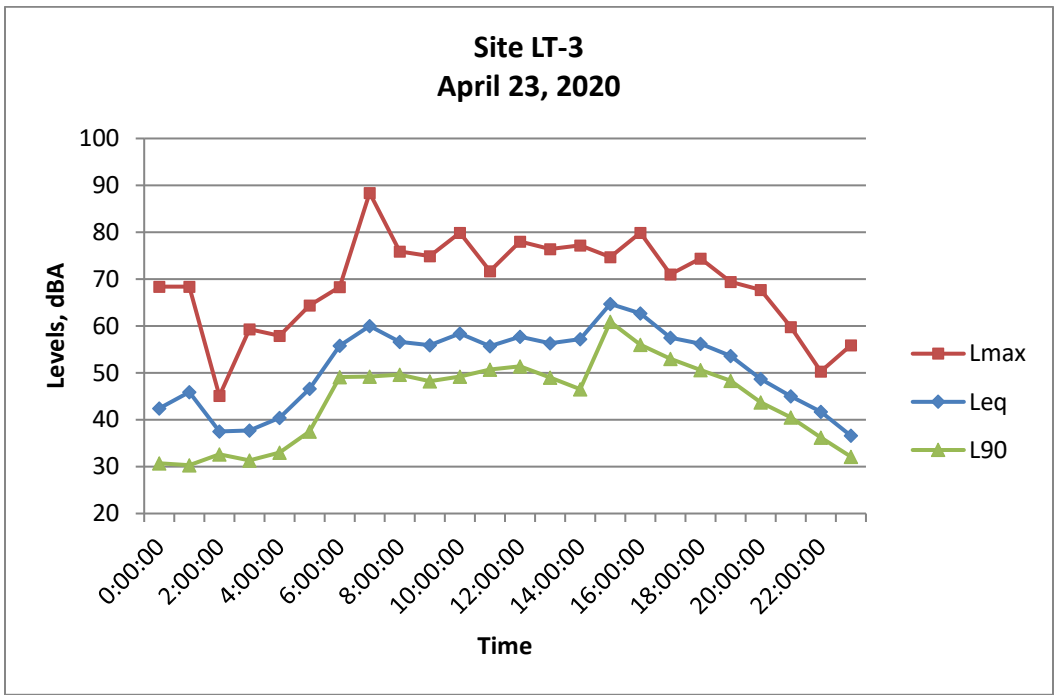
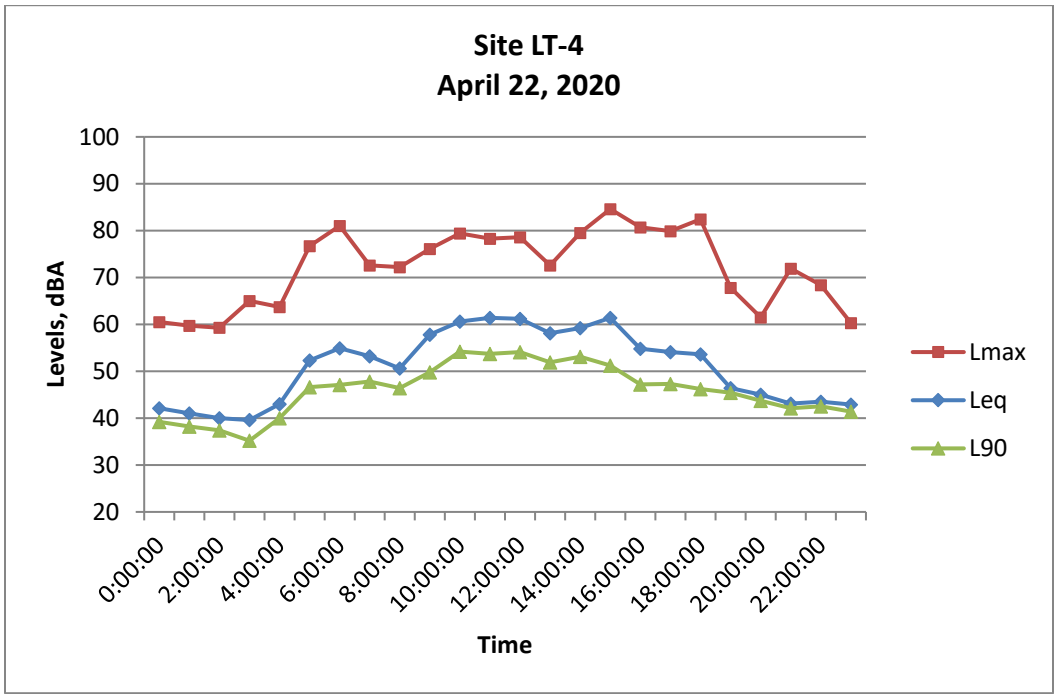


FIGURE 9: NOISE MEASUREMENT SITE LT-3

FIGURE 10: HOURLY NOISE LEVELS AT SITE LT-4



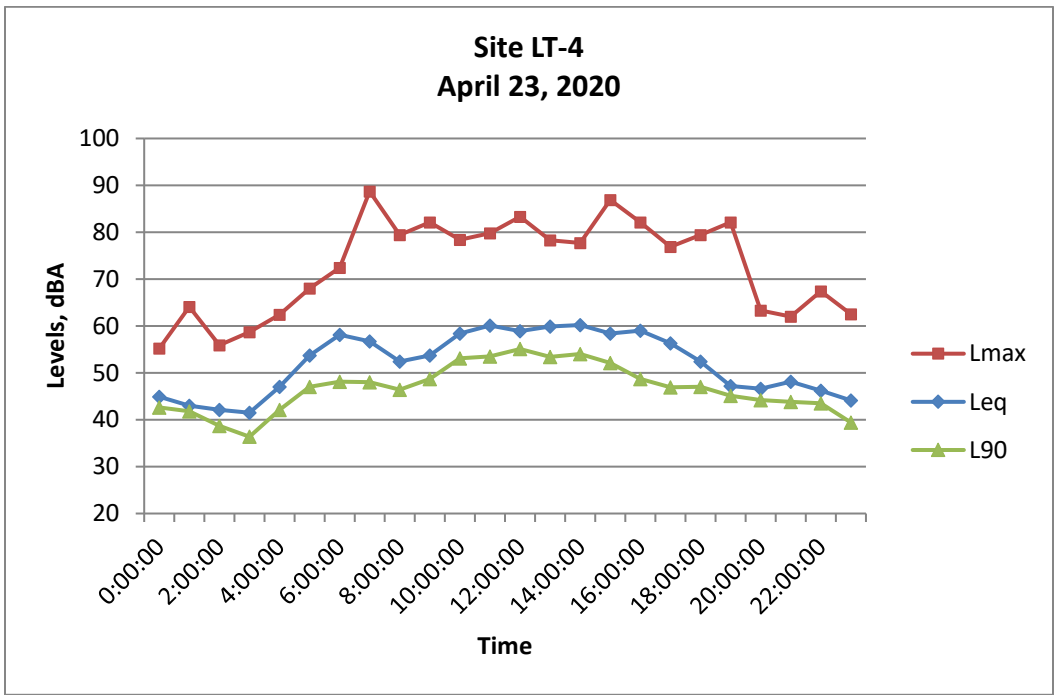


FIGURE 11: NOISE MEASUREMENT SITE LT-4

FIGURE 12: MODELED TRAFFIC NOISE RECEPTOR LOCATIONS

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.

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.

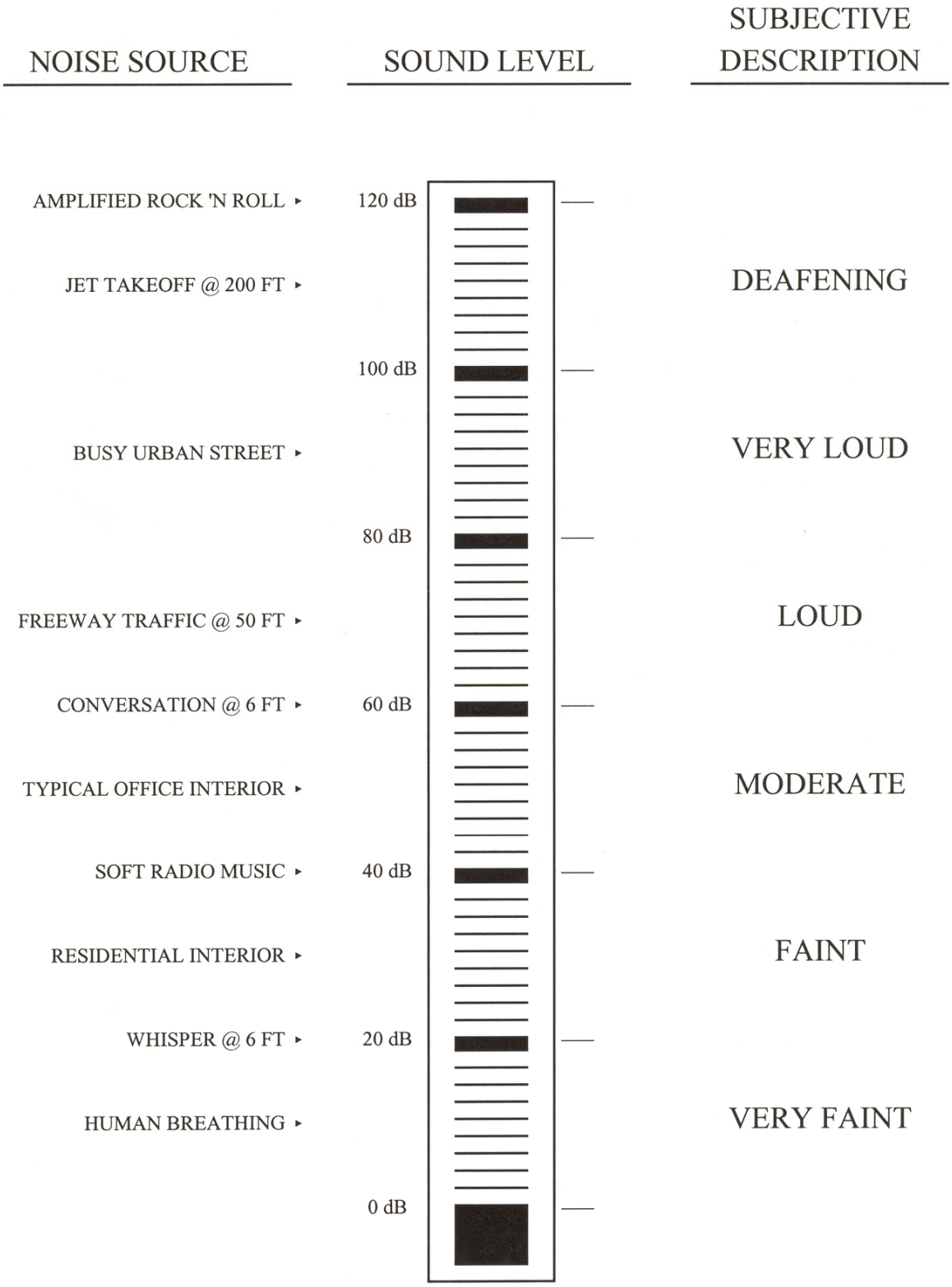
NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss 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
August 14, 2020

Project #:	20-011
Description:	Existing
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)	60	65	70	75					

Segment	**Roadway Name**	**Segment Description**	**ADT**	**%Day**	**%Evening**	**%Night**	**%Med**	**%Heavy**	**Speed**	**Distance**	**Offset**
1	US 101	5th St to Alta **R-1**	39800	85		15	7.5	7.5	65	200	-5
2	US 101	Gloria Rd to 5th St **R-2**	37700	85		15	7.5	7.5	65	150	-5
3	Alta St	5th St to Gonzales River Rd **R-3**	7923	85		15	7.5	7.5	30	125	-5
4	Fanoe Rd / Herold Pkwy	Associated Ln to Arterial B **R-4**	2461	85		15	1.5	1.5	25	50	-5
5	Fanoe Rd / Herold Pkwy	South of 5th St **R-5**	3526	85		15	1	1	25	55	-5
6	5th St / Johnson Cyn Rd	Alta St to US 101 **R-6**	5712	85		15	2	2	35	75	
7	Gloria Rd	Herold Pkwy to Arterial A**R-7**	1507	75		25	13.5	13.5	35	475	
8	Iverson Rd	Johnson Canyon Rd to Gloria Rd **R-8**	413	87		13	1	1	35	50	
9	Iverson Rd	Arterial B to Johnson Canyon Rd	413	87		13	1	1	35	400	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
September 15, 2020

Project #:	20-011
Description:	Existing + Project
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)	60	65	70	75					

Segment	**Roadway Name**	**Segment Description**	**ADT**	**%Day**	**%Evening**	**%Night**	**%Med**	**%Heavy**	**Speed**	**Distance**	**Offset**
1	US 101	5th St to Alta **R-1**	38438	85		15	7.5	7.5	65	200	-5
2	US 101	Gloria Rd to 5th St **R-2**	39520	85		15	7.5	7.5	65	150	-5
3	Alta St	5th St to Gonzales River Rd **R-3**	7655	85		15	7.5	7.5	30	125	-5
4	Fanoe Rd / Herold Pkwy	Associated Ln to Arterial B **R-4**	11106	85		15	1.5	1.5	25	50	-5
5	Fanoe Rd / Herold Pkwy	South of 5th St **R-5**	3519	85		15	1	1	25	55	-5
6	5th St / Johnson Cyn Rd	Alta St to US 101 **R-6**	7213	85		15	2	2	35	75	
7	Gloria Rd	Herold Pkwy to Arterial A**R-7**	1506	75		25	13.5	13.5	35	475	
8	Iverson Rd	Johnson Canyon Rd to Gloria Rd **R-8**	416	87		13	1	1	35	50	
9	Iverson Rd	Arterial B to Johnson Canyon Rd	481	87		13	1	1	35	400	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
August 14, 2020

Project #:	20-011
Description:	Cumulative
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)	60	65	70	75					

Segment	**Roadway Name**	**Segment Description**	**ADT**	**%Day**	**%Evening**	**%Night**	**%Med**	**%Heavy**	**Speed**	**Distance**	**Offset**
1	US 101	5th St to Alta **R-1**	51455	85		15	7.5	7.5	65	200	-5
2	US 101	Gloria Rd to 5th St **R-2**	48867	85		15	7.5	7.5	65	150	-5
3	Alta St	5th St to Gonzales River Rd **R-3**	11174	85		15	7.5	7.5	30	125	-5
4	Fanoe Rd / Herold Pkwy	Associated Ln to Arterial B **R-4**	12602	85		15	1.5	1.5	25	50	-5
5	Fanoe Rd / Herold Pkwy	South of 5th St **R-5**	11304	85		15	1	1	25	55	-5
6	5th St / Johnson Cyn Rd	Alta St to US 101 **R-6**	8733	85		15	2	2	35	75	
7	Gloria Rd	Herold Pkwy to Arterial A**R-7**	11176	75		25	13.5	13.5	35	475	
8	Iverson Rd	Johnson Canyon Rd to Gloria Rd **R-8**	2474	87		13	1	1	35	50	
9	Iverson Rd	Arterial B to Johnson Canyon Rd	1178	87		13	1	1	35	400	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
September 15, 2020

Project #:	20-011
Description:	Cumulative w/o VL
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB) 60 65 70 75

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	US 101	5th St to Alta **R-1**	52597	85		15	7.5	7.5	65	200	-5
2	US 101	Gloria Rd to 5th St **R-2**	47895	85		15	7.5	7.5	65	150	-5
3	Alta St	5th St to Gonzales River Rd **R-3**	11267	85		15	7.5	7.5	30	125	-5
4	Fanoe Rd / Herold Pkwy	Associated Ln to Arterial B **R-4**	7141	85		15	1.5	1.5	25	50	-5
5	Fanoe Rd / Herold Pkwy	South of 5th St **R-5**	10752	85		15	1	1	25	55	-5
6	5th St / Johnson Cyn Rd	Alta St to US 101 **R-6**	8206	85		15	2	2	35	75	
7	Gloria Rd	Herold Pkwy to Arterial A**R-7**	11184	75		25	13.5	13.5	35	475	
8	Iverson Rd	Johnson Canyon Rd to Gloria Rd **R-8**	2831	87		13	1	1	35	50	
9	Iverson Rd	Arterial B to Johnson Canyon Rd	1218	87		13	1	1	35	400	

wjv acoustics

October 22, 2021

Mr. Ron Sissem
Principal
EMC PLANNING GROUP
301 Lighthouse Avenue, Suite C
Monterey, California 93940

RE: VISTA LUCIA TRAFFIC NOISE LEVELS, PHASE I TENTATIVE MAP

Dear Mr. Sissem:

As requested, WJV Acoustics, Inc. (WJVA) is providing this letter as an addendum to the acoustical analysis prepared for the Vista Lucia Annexation Project (dated November 20, 2020). Specifically, this letter is intended to address potential traffic noise exposure levels at proposed sensitive receptor locations (residential land uses) locate along Fanoe Road (Phase 1). WJVA reviewed the proposed Phase 1 tentative map (dated March 5, 2021). Reference to the Phase 1 tentative map indicates that the proposed residential land uses closest to Fanoe Road would (generally) be separated from Fanoe Road by an interior collector road, and the proposed homes would no abut Fanoe Road at the residential backyards.

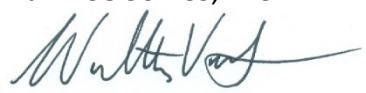
The exterior noise standard applies at the backyards of single-family residential land uses. The majority of the proposed residential lots closest to Fanoe Road would be oriented such that the front of the residences face toward Fanoe Road, with individual backyards acoustically shielded from Fanoe Road traffic noise by the residential construction. Additionally, as described in the original acoustical analysis, a minimum setback distance of 100 feet from Fanoe Road would be required to comply with the applicable 60 dB L_{dn} exterior noise level standard. Reference to the proposed tentative track map indicates that all proposed homes within Phase I are located at setback distances of 100 feet or more from the Roadway, and as such all Phase I lots would comply with the 60 dB L_{dn} exterior noise level standard.

Future phases with residential land uses adjacent to Iverson Road, Fanoe Road or Associated Lane would require specific review once tentative maps are prepared and approved.

Please contact me at 559-627-4923 or walter@wjvacoustics.com if there are questions or additional information is required.

Sincerely,

WJV ACOUSTICS, INC.



Walter J. Van Groningen
President