Appendix D

Noise and Vibration Impact Assessment for Betabel Commercial Development

Noise & Vibration Impact Assessment

Betabel Commercial Development

San Benito County, California

BAC Job # 2022-083

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Introduction

The proposed Betabel Commercial Development Project (project) would involve the construction and operation of a roadside attraction near the intersection of U.S. Highway 101 (US 101) and Betabel Road in San Benito County, California. The project includes a range of new commercial, lodging, and recreational uses on the site. Specifically, the project proposes a gas station and convenience store, a restaurant, amusement buildings, a visitor center, a motel, an outdoor event center and open space. Figure 1 shows the project area and Figure 2 shows the project site plan.

The purposes of this analysis are to quantify the existing noise and vibration environments at sensitive receptors in the project vicinity, identify potential noise and vibration impacts resulting from the project, and identify appropriate mitigation measures where impacts are identified. This report documents the noise and vibration analysis prepared for this project.

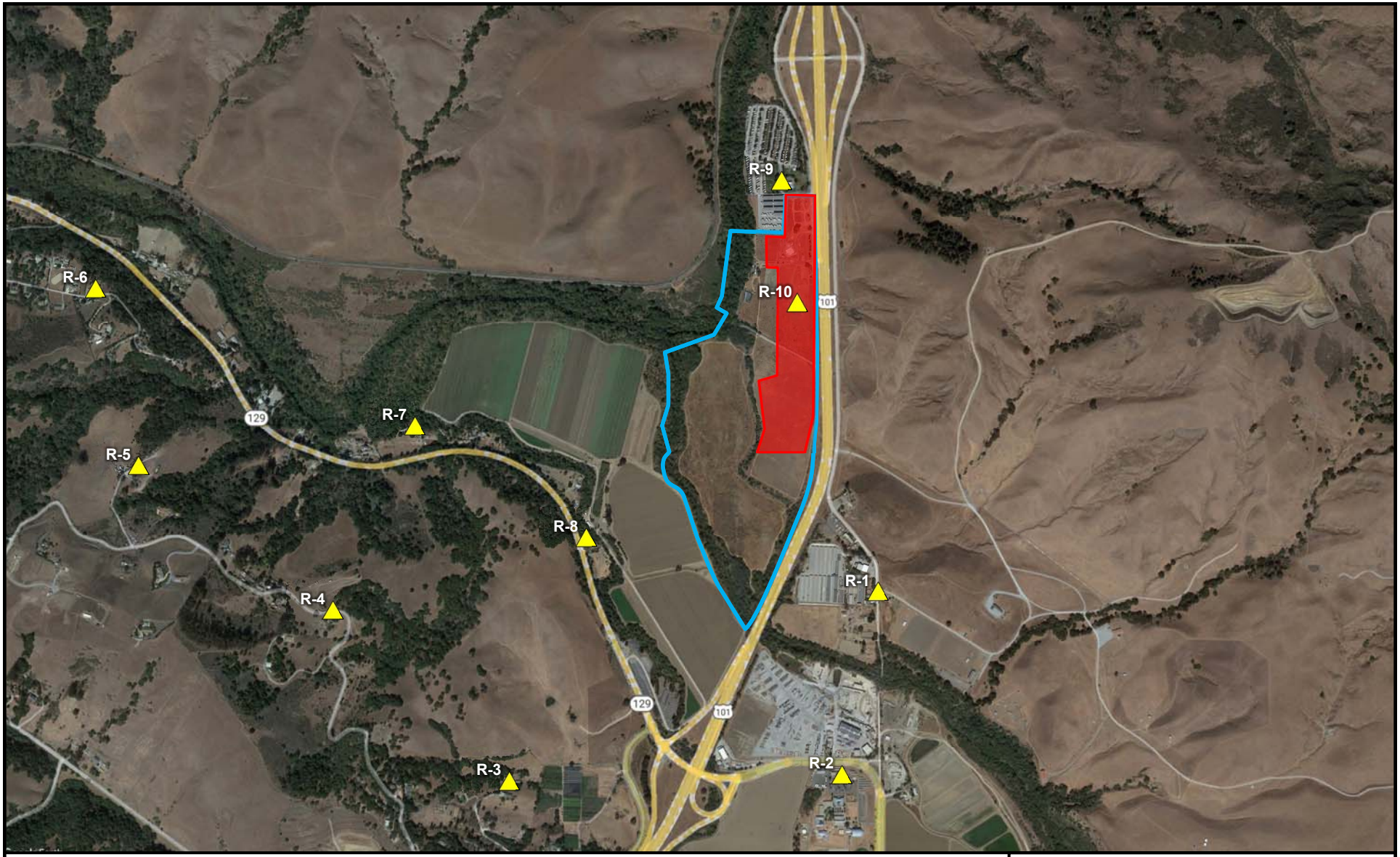
Environmental Setting

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Appendix A contains definitions of Acoustical Terminology used in this report. Figure 3 shows common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network. There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels in this report are in terms of A-weighted levels.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor, DNL, and shows very good correlation with community response to noise.



Legend

- Project Development Area (See Figure 2)
- Project Site Boundaries
- Representative Nearby Sensitive Receptor Locations

N

Scale (Feet)

0 1000 1500

Betabel Commercial Development

San Benito County, California

Project Area & Representative Sensitive Receptor Locations

Figure 1

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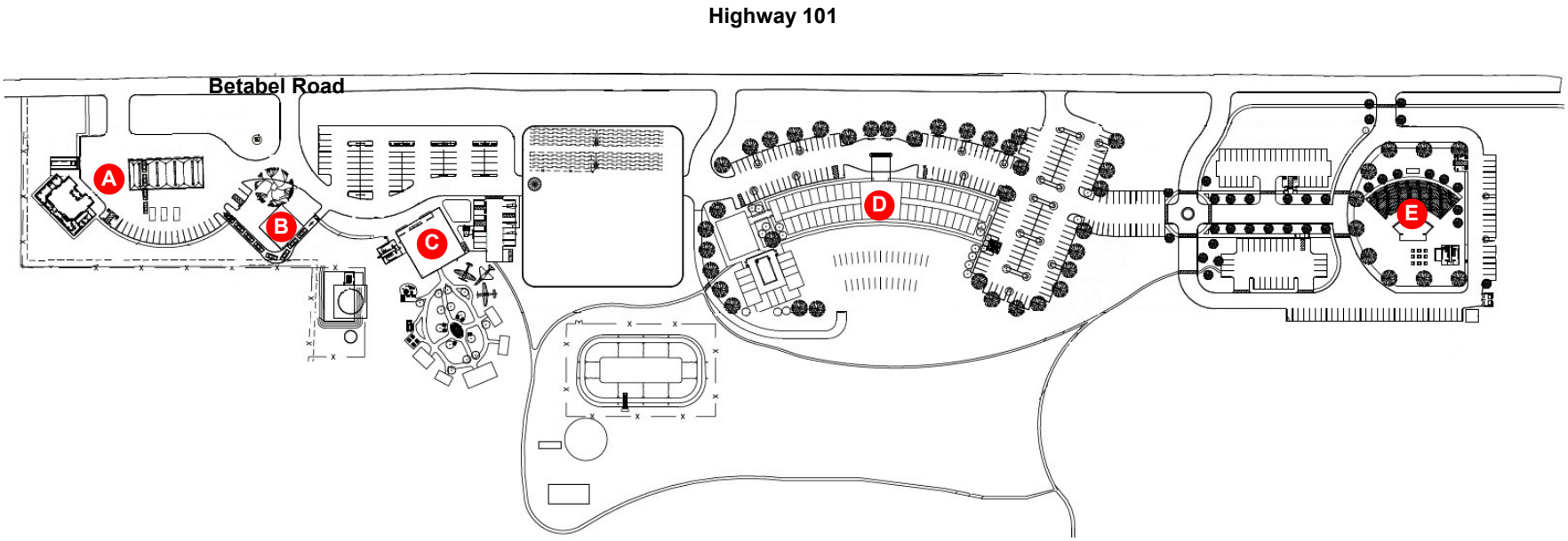

Legend

- **A** Proposed Convenience Store & Gas Station
- **B** Proposed Restaurant
- **C** Proposed Farmstand
- **D** Proposed Motel
- **E** Proposed Outdoor Event Center

N

Scale (Feet)

0 125 250

Betabel Commercial Development

San Benito County, California

Project Site Plan & Major Features

Figure 2

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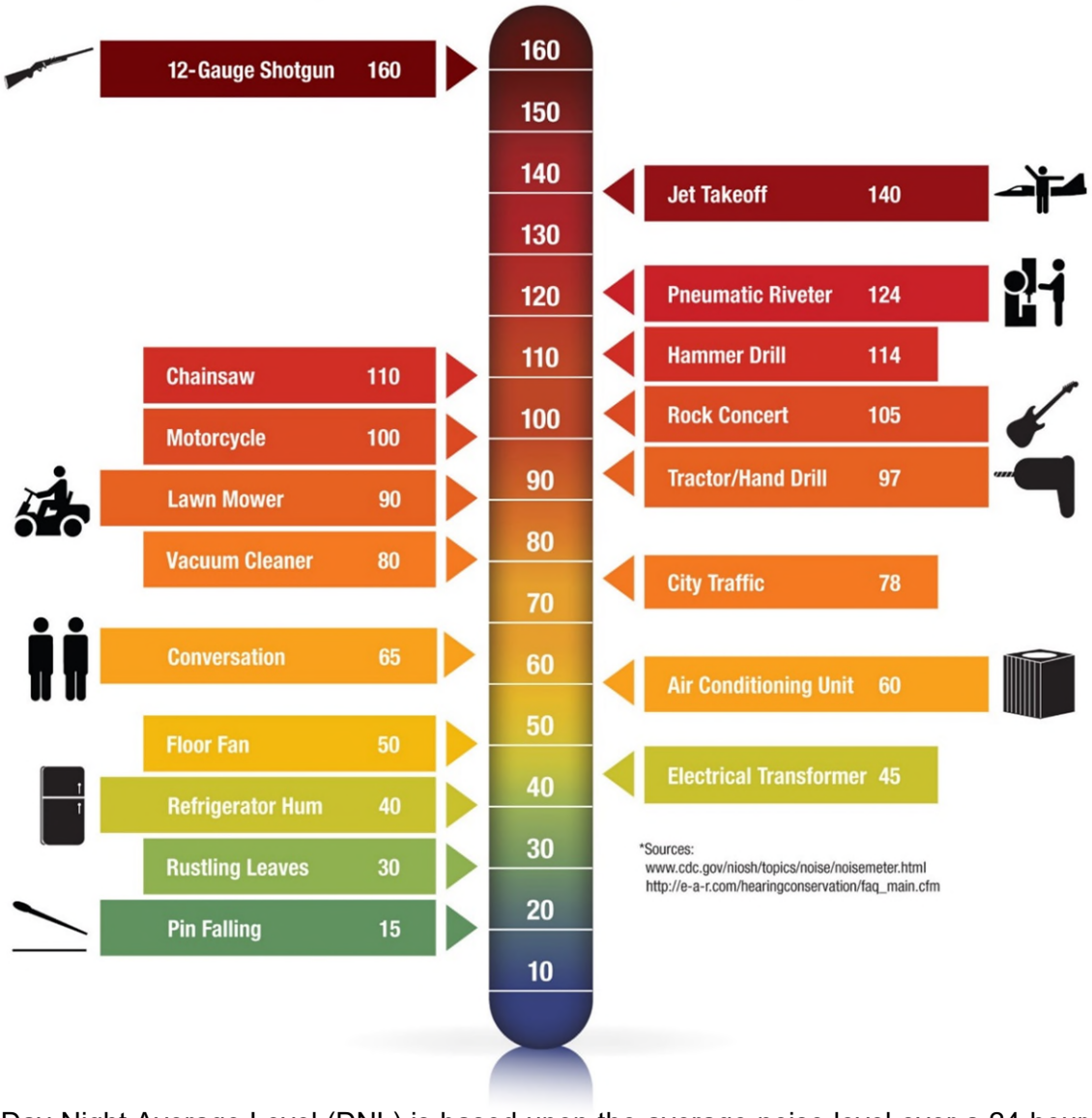
Figure 3
Noise Levels Associated with Common



The Day-Night Average Level (DNL) is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment. DNL-based noise standards are commonly used to assess noise impacts associated with traffic, railroad, and aircraft noise sources.

Noise Attenuation over Distance

Stationary "point" sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of approximately 6+ dBA per doubling of distance from the source, depending upon environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility, spread over many acres or a street with moving vehicles (a "line" or "moving point" source), would typically attenuate at a lower rate, approximately 4 to 6 dBA per doubling distance from the source (also dependent upon environmental conditions) (Caltrans, 2013). Noise from large construction sites (with heavy equipment moving dirt and trucks entering and exiting the site daily) would have characteristics of both "point" and "line" sources, so attenuation would generally range between 4.5 and 6 dBA per doubling of distance. Atmospheric absorption of sound varies depending on temperature and relative humidity, as well as the frequency content of the noise source. In general, "average day" atmospheric conditions result in attenuation at a rate of approximately 1.5 dB per thousand feet of distance at 1,000 Hertz (SAE ARP 866A, 1975).

Vibration Fundamentals and Terminology

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of velocity in inches per second peak particle velocity (IPS, PPV) or root-mean-square (VdB, RMS). Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity as well as RMS velocities.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate, or velocity of particle movement, is the commonly accepted descriptor of the vibration "strength".

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does frequency. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

Environmental Setting – Existing Ambient Noise Environment

Noise-Sensitive Receptors in the Project Vicinity

Noise-sensitive receptors are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to these activities.

Figure 1 shows the locations of representative sensitive receptors in the immediate project vicinity. The nearest existing receptors to the project site consist primarily of residences to the south and west (Receptors R-1, & R-3 : R-8 on Figure 1), Anzar High School to the south (R-2), and the Betabel RV Resort to the north (R-9). Receptor R-10 represents the nearest sensitive receptor proposed within the project development (Motel).

This analysis recognizes that there are many residences located to the southwest and west of the project site. In such cases, it is common practice to evaluate a sample of residential receptors which are representative of the larger population of residences in the project area. Such was the case in this evaluation, with 6 residences selected as being representative of the noise exposure at the remaining residences.

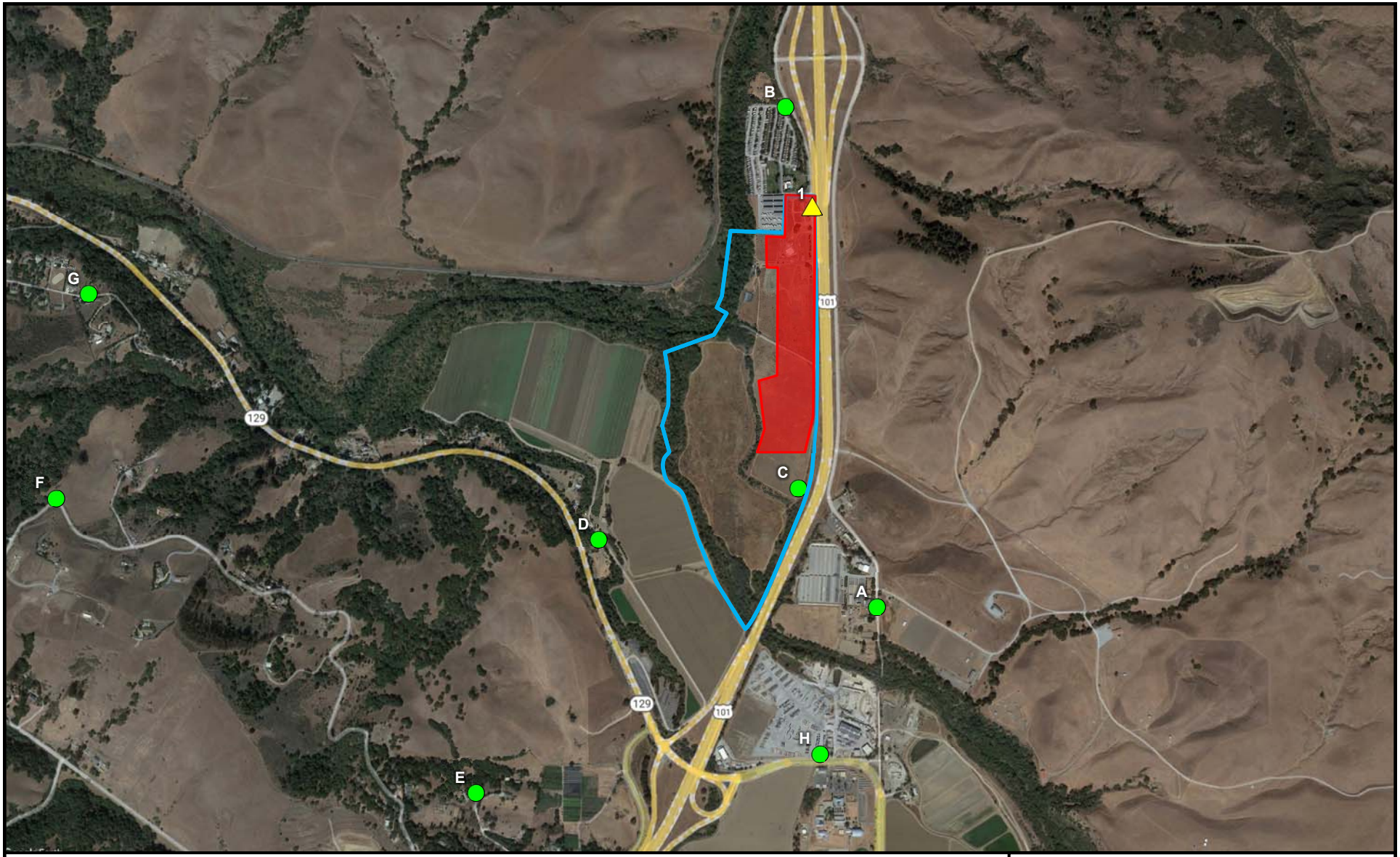
Existing Ambient Noise Environment at the Project Site

The existing ambient noise environment in the immediate project vicinity is dominated by traffic on US 101. Traffic on State Route 129 (SR-129) and other local roadways contribute to ambient conditions at more distant receptors from the project site, but ambient conditions at the nearest receptors to the project site (R-1, R-9, and R-10) are defined almost exclusively by US 101 traffic noise. To quantify existing ambient noise conditions a combination of long-term and short-term noise surveys were conducted. Figure 4 shows the ambient noise survey locations.

The long-term noise survey was conducted on the project site at location 1 shown on Figure 4. This location was selected to specifically quantify noise generated by US 101, with the noise meter located approximately 150 feet from the centerline of US 101. The long-term survey extended for a period of 98 consecutive hours from 11 am on Thursday, May 12th through 1 pm on Monday, May 16th, 2022. Photographs of the long-term noise monitoring site are provided in Appendix B.

The short-term noise surveys were conducted at 7 locations representative of the sensitive receptors nearest to the project site or sensitive receptors with elevated positions relative to the project site. The short-term noise surveys were conducted on Monday, May 16th between the hours of 11 am and 2 pm.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to conduct the long and short-term noise surveys. The meters were calibrated immediately before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).



Legend

- Project Development Area (See Figure 2)
- Project Site Boundaries
- Short-term Noise Measurement Locations
- Long-term Noise Measurement Location

N

Scale (Feet)

0 1000 1500

Betabel Commercial Development

San Benito County, California

Ambient Noise Measurement Locations

Figure 4

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The results of the long-term noise level measurements are summarized in Table 1 with the complete long-term survey results shown numerically and graphically in Appendices C and D, respectively. The short-term noise survey results are provided in Table 2.

Table 1
Summary of Long-Term Noise Survey Results
Betabel Commercial Development Project – San Benito County, California

			Average of Measured Hourly Noise Levels (dBA)			
			Daytime		Nighttime	
		DNL	(7 am to 10 pm)		(10 pm to 7 am)	
Location[1]	Date[2]	(dB)	L_{eq}	L_{max}	L_{eq}	L_{max}
Site 1: Northern portion of the project site, approximately 150 feet west of US 101 centerline.	Thursday, May 12,	71	67	80	65	83
	Friday, May 13	72	68	83	65	78
	Saturday, May 14	71	67	83	64	79
	Sunday, May 15	69	66	81	62	78
	Monday, May 16	72	67	78	65	77

[1] The long-term noise measurement location is shown on Figure 4, identified as Site 1.
[2] The long-term ambient noise monitoring was conducted in 2022.
Source: Bollard Acoustical Consultants, Inc. (2022)

The Table 1 data indicate that existing US 101 traffic noise exposure was consistently 71-72 DNL during weekday and Saturday periods, and slightly lower during the Sunday period. Hourly average and maximum noise levels were also fairly consistent throughout the monitoring period, with slightly lower levels observed during the Sunday period.

Table 2
Summary of Short-Term Noise Survey Results
Betabel Commercial Development Project – San Benito County, California

			Measured Ambient Noise Level	
Site[1]	Time	Duration	L_{eq}, dBA	L_{max}, dBA
A	11:19 AM	5 min	56	68
B	11:38 AM	5 min	54	64
C	11:52 AM	5 min	63	69
D	12:17 PM	5 min	66	78
E	12:40 PM	5 min	47	60
F	1:02 PM	5 min	45	59
G	1:25 PM	5 min	47	58
H	1:45 PM	5 min	67	77

[1] Short-term noise measurement locations are shown on Figure 4.
[2] The short-term ambient noise monitoring was conducted on May 16, 2022.
Source: Bollard Acoustical Consultants, Inc. (2022)

The short-term ambient noise level data presented in Table 2 indicate that ambient conditions varied considerably between the noise monitoring sites. Sites C, D & H exhibited the highest ambient conditions due to their proximity to US 101, SR 129, and Chittenden Road. At monitoring sites more removed from the major local roadways (i.e., Sites E-G), ambient conditions were considerably lower as expected.

Existing Traffic Noise Environment in Project Vicinity

Traffic Noise Prediction Model:

To predict noise levels generated by local traffic on the roadways in the immediate project vicinity in terms of day/night average levels (DNL), The FHWA Traffic Noise Model (FHWA-RD-77-108) was used. Inputs to the FHWA Model include the average daily traffic volume (ADT), the day/night distribution of traffic, percentages of medium-duty (2-axle) trucks, percentages of heavy-duty (3 or more axles) trucks, vehicle speed, distance to the roadway centerline, and the acoustical characteristics of the ground adjacent to the roadways (hard or soft).

Traffic Noise Prediction Model Inputs:

The traffic study prepared for this project provided existing (2022), peak hour traffic volumes for Betabel Road, Y Road, the US 101 access ramps at the Lomerias Overcrossing, and the Lomerias Overcrossing between Betabel Road and Y Road. The peak hour traffic volumes were provided for both weekday and weekend periods. ADT's for the local roadway segments evaluated in the project traffic analysis were computed by multiplying peak hour volumes by a factor of 10. Existing US 101 traffic volumes and truck usage percentages were obtained from annual traffic survey information published by the California Department of Transportation (Caltrans). Vehicle speeds used to model local traffic noise levels were obtained from field surveys. The acoustical characteristics of the areas located adjacent to the local roadways were identified through field surveys as being acoustically "soft" in nature (i.e., 4.5 dBA decrease in noise levels for each doubling of distance from the roadway centerlines).

Traffic Noise Prediction Model Calibration:

To check the accuracy of the FHWA Model existing traffic noise levels from each nearby roadway were predicted at the long-term noise measurement site and the combined traffic noise levels for each roadway were compared against the long-term noise measurement results shown in Table 1. The results of this calibration procedure indicated that the FHWA Model overpredicted weekday and weekend traffic noise levels by 2.5 and 4.5 DNL, respectively. As a result, calibration offsets of -2.5 and -4.5 dB were applied to the model for the prediction of existing and future traffic noise exposure at the project site and nearest sensitive receptors to the project site.

Predicted Existing Traffic Noise Levels at Nearest Sensitive Receptors:

The focus of the traffic noise analysis was the modeling of traffic noise generation from each roadway segment included in the project traffic study, and US 101 (which was not included in the traffic study), individually at the nearest sensitive receptors to the project site and to those roadways included in the traffic analysis (R-1: Residences to the south and R-9: Betabel RV

resort). These receptors were the focus of the traffic noise analysis due to their being the nearest sensitive receptors to US 101 (R-1 and R-9), and the nearest to Betabel Road (R-9) where the project traffic generation would be most concentrated. The noise levels from each roadway segment were modeled individually at both receptors then combined to arrive at a cumulative existing traffic noise exposure from all roadways. Complete listings of FHWA Model Inputs for existing conditions at Receptors R-1 and R-9 are provided in Appendices E-1 and E-2, respectively. The predicted existing traffic noise exposure at those receptors is presented in Table 3.

Table 3
Existing Traffic Noise Modeling Results at Nearest Sensitive Receptors
Betabel Commercial Development – San Benito County

			Predicted DNL, dBA	
Receptor	**Roadway**	**Segment**	**Weekday**	**Weekend**
R-1	Betabel Rd	North of Lomerias O/C	15	13
R-1	Betabel Rd	South of Lomerias O/C	19	20
R-1	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	18	18
R-1	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	17	15
R-1	Lomerias O/C	US 101 N/B Ramps to Y Road	13	13
R-1	Y Road	North of Lomerias O/C	13	1
R-1	Y Road	South of Lomerias O/C	40	42
R-1	US 101 S/B Ramp	North of Lomerias O/C	24	24
R-1	US 101 S/B Ramp	South of Lomerias O/C	25	22
R-1	US 101 N/B Ramp	North of Lomerias O/C	23	23
R-1	US 101 N/B Ramp	South of Lomerias O/C	22	22
R-1	Highway 101	Lomarias O/C to Hwy 129	60	58
R-1	**Combined Traffic Noise at R-1 from All Roadways:**		**60**	**58**
R-9	Betabel Rd	North of Lomerias O/C	30	28
R-9	Betabel Rd	South of Lomerias O/C	46	47
R-9	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	34	34
R-9	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	32	30
R-9	Lomerias O/C	US 101 N/B Ramps to Y Road	25	24
R-9	Y Road	North of Lomerias O/C	23	12
R-9	Y Road	South of Lomerias O/C	30	32
R-9	US 101 S/B Ramp	North of Lomerias O/C	36	37
R-9	US 101 S/B Ramp	South of Lomerias O/C	48	44
R-9	US 101 N/B Ramp	North of Lomerias O/C	35	34
R-9	US 101 N/B Ramp	South of Lomerias O/C	40	41
R-9	Highway 101	Lomarias O/C to Hwy 129	68	66
R-9	**Combined Traffic Noise at R-9 from All Roadways:**		**68**	**66**

Note: Receptor locations are identified on Figure 1
Sources: FHWA-RD-77-108, BAC, Caltrans, and the Project Traffic Study

As shown in Table 3, noise generated by US 101 is essentially responsible for the total traffic noise exposure at receptors R-1 and R-9. Although it is not visible in Table 3 due to the DNL values being rounded to the nearest whole decibel, all other roadways combined only contribute 0.1 dB DNL to the existing traffic noise environment generated by US 101. The significance of this finding is discussed in a later section of this report.

Environmental Setting – Existing Ambient Vibration Environment

During site visits in May of 2022, vibration levels were observed to be below the threshold of perception at the project site and at each of the short-term noise monitoring locations. This is because traffic generates rolling force on the local roadway network rather than impact force, which generated negligible vibration levels beyond the roadway right of way. In addition, no other impact vibration sources were identified in the project vicinity. As a result, the baseline vibration environment within the project site and at the nearest representative receptor locations is considered to be below the threshold of perception and, therefore, negligible.

Regulatory Setting: Criteria for Acceptable Noise Exposure

Federal

There are no federal noise criteria which would be directly applicable to this project. However, because San Benito County does not have a specific policy for assessing noise impacts associated with increases in ambient noise levels resulting from a project, the following federal criteria are utilized in this assessment:

Federal Interagency Commission on Noise (FICON)

The Federal Interagency Commission on Noise (FICON) has developed a graduated scale for use in the assessment of project-related noise level increases. The FICON criteria are shown in Table 4. The FICON criteria have been used extensively in recent years by the authors of this section in the preparation of the noise sections of Environmental Impact Reports that have been routinely certified in California cities and counties.

The use of the FICON criteria is considered conservative relative to thresholds used by other agencies in the State of California. For example, the California Department of Transportation (Caltrans) requires a project-related traffic noise level increase of 12 dB for a finding of significance, and the California Energy Commission (CEC) considers project-related noise level increases between 5 to 10 dB significant, depending on local factors. Therefore, the use of the FICON criteria, which set the threshold for finding of significant noise impacts as low as 1.5 dB, provides a conservative approach to impact assessment for this project.

Table 4
Criteria for Assessing the Significance of Project-Related Noise Level Increases

Ambient Noise Level Without Project (DNL)	Change in Ambient Noise Level Due to Project Considered to be Significant
<60 dB	+5.0 dB or more
60 to 65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: Federal Interagency Committee on Noise (FICON)

Based on the FICON criteria shown in Table 4, a 5 dB increase in baseline noise levels due to a project is required for a finding of significant noise impact where ambient noise levels without the project are less than 60 dB DNL. Where pre-project ambient conditions are between 60 and 65 DNL, a 3 dB increase is applied as the standard of significance for a finding of noise impact. Finally, in areas exposed to higher baseline noise levels, specifically pre-project noise levels in excess of 65 DNL, a 1.5 dB increase is considered by FICON as the threshold of significance for a finding of significant noise impact.

State of California

California Environmental Quality Act (CEQA)

The State of California has established regulatory criteria that are applicable to this assessment. Specifically, Appendix G of the State of California Environmental Quality Act (CEQA) Guidelines are used to assess the potential significance of impacts pursuant to local General Plan policies, Municipal Code standards, or the applicable standards of other agencies. According to Appendix G of the CEQA guidelines, the project would result in a significant noise or vibration impact if the following occur:

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

B. Generation of excessive groundborne vibration or groundborne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered significant according to CEQA. Because every physical process creates noise, whether by the addition of a single vehicle on a roadway, or a tractor in an agricultural field, the use of audibility alone as significance criteria would be unworkable. CEQA requires a substantial increase in ambient noise levels before noise impacts are identified, not merely an audible change.

Local

San Benito County 2035 General Plan

The Health and Safety Element (Section 9) of the San Benito County 2035 General Plan contains policies and actions to ensure that County residents are not subjected to noise beyond acceptable levels. The County General Plan policies and actions which are applicable to this project's noise impact evaluation are reproduced below:

Policy HS-8.1: (Project Design) – The County shall require new development to comply with the noise standards shown in Tables 9-1 & 9-2 through proper site and building design, such as building orientation, setbacks, barriers (e.g., earthen berms), and building construction practices. The County shall only consider the use of soundwalls after all design-related noise mitigation measures have been evaluated or integrated into the project or found infeasible. (County General Plan Tables 9-1 and 9-2 are provided below.

Table 9-1
Non-Transportation Noise Level Performance Standards for Noise-Sensitive Uses

Noise Level Descriptor	Daytime (7:00 am – 10:00 pm)	Nighttime (10:00 pm – 7:00 am)
Hourly L_{eq} dB	55	45
Maximum Level, dB	70	65

Notes: These standards apply to new or existing residential areas affected by new or existing non-transportation sources.

Table 9-2
Land Use Compatibility Guidelines for Community Noise Environments

Land Use Category	Community Noise Exposure Ldn/CNEL, dB 55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Homes						
Residential – Multi. Family						
Transient Lodging – Motels, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arenas, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Course, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Business Commercial and Professional						
Industrial, Manufacturing Utilities, Agriculture						

CLEARLY ACCEPTABLE
The noise exposure is such that the activities associated with the land use may be carried out with essentially no interference from aircraft noise. (Residential areas: both indoor and outdoor noise environments are pleasant.)

NORMALLY ACCEPTABLE
The noise exposure is great enough to be of some concern, but common building construction will make the indoor environment acceptable, even for sleeping quarters.

NORMALLY UNACCEPTABLE
The noise exposure is significantly more severe so that unusual and costly building construction is necessary to insure adequate performance of activities. (Residential areas: barriers must be created between the site and prominent noise sources to make the outdoor environment tolerable.)

CLEARLY UNACCEPTABLE
The noise exposure is so severe that construction costs to make the indoor environment acceptable for performance of activities would be prohibitive. (Residential areas: the outdoor environment would be intolerable for normal residential use.)

Policy HS-8.2: (Acoustical Analysis) – The County shall require an acoustical analysis to be performed prior to development approval where proposed land uses may produce or be exposed to noise levels exceeding the "normally acceptable" criteria (e.g., "conditionally acceptable", "normally acceptable") shown in Table 9-2. Land uses should be prohibited from locating, or required to mitigate, in areas with a noise environment within the "unacceptable" range.

Policy HS-8.3: (Construction Noise) – The County shall control the operation of construction equipment at specific sound intensities and frequencies during daytime hours between 7 am and 6 pm on weekdays and 8 am and 5 pm on Saturdays. No construction shall be allowed on Sundays or federal holidays.

Policy HS-8.8: (Noise Exemptions) – The County shall support the exemption of the following noise sources from the standards in this element:

a. Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during the hours of 7 am to 10 pm.
b. Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours.
c. Activities associated with County-permitted temporary events and festivals.

Policy HS-8.9: (Interior Noise Standards) – Adopt the State of California Code of Regulations' (Title 24) minimum noise insulation interior performance standard of 45 dBA DNL for all new residential construction including hotels, motels, dormitories, apartment houses, and single-family dwellings.

Policy HS-8.10: (Reduction in Noise Levels at Existing Land Uses) – Reduce traffic noise levels where expected to significantly impact sensitive receptors through the installation of noise control measures such as quiet pavement surfaces, noise barriers, traffic calming measures, and interior sound insulation treatments.

Policy HS-8.11: (New Project Noise Mitigation Requirements) – Require new projects to include appropriate noise mitigation measures to reduce noise levels in compliance with the Table 9-1 and 9-2 standards within sensitive areas. If a project includes the creation of new non-transportation noise sources, require the noise generation of those sources to be mitigated so they do not exceed the interior and exterior noise level standards of Table 9-2 at existing noise-sensitive areas in the project vicinity, unless an exception is made by the County on a case-by-case basis. However, if a noise-generating use is proposed adjacent to lands zoned for residential uses, then the noise-generating use shall be responsible for mitigating its noise generation to a state of compliance with the standards shown in Table 9-2 at the property line of the generating use in anticipation of the future residential development, unless an exception is made by the County on a case-by-case basis.

Policy HS-8.12: (Construction Noise Control Plans) – Require all construction projects to be constructed within 500 feet of sensitive receptors to develop and implement construction noise control plans that consider the following available controls in order to reduce construction noise levels as low as practical:

- Utilize "quiet" models of air compressors and other stationary noise sources where technology exists;
- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;
- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses;
- Locate staging areas and construction material areas as far away as possible from adjacent land uses;
- Prohibit all unnecessary idling of internal combustion engines;
- Notify all abutting land uses of the construction schedule in writing; and

Designate a "disturbance coordinator" (e.g., contractor foreman or authorized representative) who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Implementation Program HS-N: (Update Noise Ordinance) - The County shall review and update the Noise Ordinance to be consistent with the noise standards contained in Table 9-1, to include standards regulating noise from construction activities, and to facilitate a procedure for exemptions for special events, such as concerts and festivals.

San Benito County Code of Ordinances

Section 19.39.030 of the San Benito County Code of Ordinances (County Code) (Maximum Permissible Sound Pressure Levels) sets limits for exterior noise levels according to land use designation (reproduced below in Table 5). However, the County Code 50 dBA daytime and 40 dBA nighttime noise standards shown in Table 5 which are applicable to residential uses are 5 dBA more restrictive than the County General Plan standards shown in Table 9-1. This inconsistency could result in a project which is approved based on compliance with the General Plan being immediately out of compliance with the County Code noise standards. This is likely the rationale for County General Plan Implementation Program HS-N (see above), which requires an update to the County Code (Noise Ordinance) in order for the Code standards to be consistent with the General Plan standards. In light of this Implementation Program, this evaluation utilizes the General Plan noise standards shown in Tables 9-1 and 9-2 for the assessment of project noise impacts at existing noise-sensitive uses rather than the County Code standards shown in Table 5.

Table 5
San Benito County Noise Ordinance Maximum Sound Level Standards

Land Use Designation	Noise Level (dBA)	
	Day	Night
Ag Rangeland Ag Productive Rural	45	35
Rural Transitional Rural Residential	45	35
Single-Family (R1) Residential Multiple (RM) Planned Unit Development	50	40
Commercial (C-1) Commercial (C-2)	65	55
Controlled Manufacturing (CM) Light Industrial (M-1) Heavy Industrial (M-2)	70	60
Source: San Benito County Code of Ordinances, Title 19, Chapter 19.39, Article IV		

Section 19.39.051 of the County Code provides exemptions from the noise level limits identified in Table 5 for certain activities. The exemptions that would be applicable to the project are provided below.

19.39.051 Exemptions.

The following activities shall be exempt from the provisions of this chapter:

B. Activities conducted on parks, public playgrounds and school grounds, provided such parks, playgrounds and school grounds are owned and operated by a public entity or private school;

C. Noise sources associated with a lawful commercial or industrial activity caused by mechanical devices or equipment, including air conditioning or refrigeration systems;

H. Temporary construction, demolition or maintenance of structures between the hours of 7:00 a.m. and 7:00 p.m., except Sundays and federal holidays.

Regulatory Setting: Criteria for Acceptable Vibration Exposure

Local

San Benito County 2035 General Plan

The Health and Safety Element (Section 9) of the San Benito County 2035 General Plan contains policies and actions to ensure that County residents are not subjected to vibration beyond acceptable levels. The County General Plan policies and actions which are applicable to this project's vibration impact evaluation are reproduced below:

> Policy HS-8.6: (Vibration Screening Distances) – The County shall require new residential and commercial uses located adjacent to major freeways or railroad tracks to follow the Federal Transit Administration (FTA) screening distance criteria.
>
> Policy HS-8.7: (Acceptable Vibration Levels) – The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby sensitive uses based on FTA criteria.

Federal Transit Administration (FTA)

As noted above, San Benito County General Plan Health and Safety Element Policies HS-8.6 and HS-8.7 identify criteria established by the Federal Transit Administration (FTA) for the assessment of vibration impacts within the County. The FTA criteria referenced in these General Plan Policies are contained within the FTA publication, *Transit Noise and Vibration Impact Assessment Manual* (2018).

Policy HS-8.6 requires the FTA vibration screening distance criteria be utilized to determine if a detailed vibration assessment is required for a project. The FTA screening distances are provided within Table 6-8 of the FTA guidelines. The screening distance within which a detailed vibration analysis is required depends on the type of vibration source (roadway traffic in this case), and the land use categories of the sensitive receptors. According to the FTA guidelines, the screening distance for residential and motel uses (Land Use Category 2), affected by significant sources of roadway vibration is 50 feet. In other words, if noise-sensitive land uses are proposed within 50 feet of a major roadway a detailed vibration analysis would be required for the project. For commercial uses (Category 3), affected by roadway vibration, no screening distance is provided, indicating that a detailed vibration analysis would not be required.

Policy HS-8.7 requires vibration generated by project construction to satisfy the FTA's criteria for acceptable vibration levels within sensitive uses. Table 6-3 of the FTA guidelines provides groundborne vibration impact assessment criteria for a range of land uses depending on the frequency of occurrence of the vibration events. Table 6-3 of the FTA guidelines has been reproduced below as Table 6.

Table 6
FTA Groundborne Vibration Impact Assessment Criteria

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro-inch/sec)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day.
[2] "Occasional Events" is defined as between 30 and 70 vibration events of the same kind per day.
[3] "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.
[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels is a building requires special design of HVAC systems and stiffened floors.

Source: 2018 FTA Transit Noise and Vibration Impact Assessment Manual, Table 6-4

Impacts and Mitigation Measures

Significance Thresholds

As noted previously, CEQA requires the identification of significant noise and/or vibration impacts if the project would result in:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies. The specific significance thresholds used to evaluate impacts relative to CEQA Criteria "A" are as follows:

- **Noise level increases at existing off-site noise-sensitive receptors resulting from project-generated traffic**: The FICON criteria identified in Table 4 are used to assess the significance of project-related traffic noise level increases at existing, off-site, noise-sensitive land uses.

- **Noise level increases at existing off-site noise-sensitive receptors resulting from activities proposed within the project development**: The FICON criteria identified in Table 4 are used to assess the significance of project-related increases in ambient noise levels at existing, off-site, noise-sensitive receptors resulting from on-site activities occurring within the project development. Such sources include project construction and operation of the convenience store, gas station, restaurant, motel, outdoor event center and on-site traffic circulation.

- **Absolute noise levels (not noise level increases), at existing off-site noise-sensitive receptors resulting from activities proposed within the project development**: The San Benito County General Plan noise standards contained within Table 9-2 are used to assess the significance of absolute noise levels generated by on-site, project-related, activities affecting existing off-site noise-sensitive receptors. On-site noise sources associated with the project include project construction and operation of the proposed convenience store, gas station, restaurant, motel, and outdoor event center, and on-site traffic circulation generated by those operations.

- **Absolute noise levels at proposed noise-sensitive land uses located within the project development**: The San Benito County General Plan noise standards contained within Table 9-2 are used to assess the significance of noise levels generated by off-site traffic affecting the noise-sensitive areas of the proposed Betabel Commercial Development.

B. Generation of excessive groundborne vibration or groundborne noise levels. The specific significance thresholds used to evaluate impacts relative to CEQA Criteria "B" are as follows:

- **Traffic vibration screening procedure for vibration-sensitive receptors proposed within the project development**: Per FTA guidelines, a detailed vibration analysis is required for vibration-sensitive uses proposed within 50 feet of a major roadway. However, the sensitive uses proposed within the project site will be in excess of 200 feet from the near travel lane of US 101. Because the proposed uses will be located beyond the 50 foot FTA screening distance, an assessment of traffic-generated vibration impacts upon the proposed on-site uses is not required.

- **Construction vibration affecting existing, off-site, vibration-sensitive receptors**: Per FTA guidelines, vibration generated during project construction shall be mitigated so as not to exceed the FTA criteria contained within Table 6.

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, if the project would expose people residing or working in the project area to excessive noise levels. The specific significance thresholds used to evaluate impacts relative to CEQA Criteria "C" are as follows:

- **Aircraft noise affecting people residing or working in the project area:** If the project area were located in the vicinity of a private airstrip within two miles of a public airport or public use airport the County's General Plan standards contained in Table 9-1 would be applicable to this project. However, because the project area is not located within two miles of a private airstrip or public use airport an evaluation of potential noise impacts related to aircraft noise is not required.

Noise and Vibration Prediction Methodology

Published literature, BAC file data, and accepted noise and vibration modeling procedures were used to predict project-generated noise and vibration levels and noise-level increases at existing, off-site, sensitive receptor locations. Similar literature and modeling were used to evaluate potential impacts upon the project site resulting from off-site traffic. The specific methodology used to evaluate each noise and vibration source related to this impact assessment follows.

Prediction of Traffic Noise Level Increases at Nearest Off-Site Sensitive Receptors

With development of the proposed project, traffic volumes on the local roadway network will increase. Those increases in traffic volumes will result in a corresponding increase in traffic noise levels at existing sensitive receptors located near the roadways utilized by project traffic.

To predict noise levels generated by local traffic on the roadways in the immediate project vicinity in terms of day/night average levels (DNL), the FHWA Traffic Noise Model (FHWA-RD-77-108) was used. Inputs to the FHWA Model include the average daily traffic volume (ADT), the day/night distribution of traffic, percentages of medium-duty (2-axle) trucks, percentages of heavy-duty (3 or more axles) trucks, vehicle speed, distance to the roadway centerline, and the acoustical characteristics of the ground adjacent to the roadways (hard or soft).

The traffic study prepared for this project provided peak hour traffic volumes for each scenario for Betabel Road, Y Road, the US 101 access ramps at the Lomerias Overcrossing, and the Lomerias Overcrossing between Betabel Road and Y Road. The peak hour traffic volumes were provided for both weekday and weekend periods. ADT's for the local roadway segments evaluated in the project traffic analysis were computed by multiplying peak hour volumes by a factor of 10. Existing US 101 traffic volumes and truck usage percentages were obtained from annual traffic survey information published by the California Department of Transportation (Caltrans). Future US 101 traffic volumes were assumed to increase by 5% per year. Vehicle speeds used to model local traffic noise levels were obtained from field surveys. The acoustical characteristics of the areas located adjacent to the local roadways were identified through field surveys as being acoustically "soft" in nature (i.e., 4.5 dBA decrease in noise levels for each doubling of distance from the roadway centerlines).

The focus of the traffic noise analysis was the modeling of traffic noise generation from each roadway segment included in the project traffic study, and US 101 (which was not included in the traffic study), individually at the nearest sensitive receptors to the project site and to those roadways included in the traffic analysis (R-1: Residences to the south and R-9: Betabel RV resort). These receptors were the focus of the traffic noise analysis due to their being the nearest sensitive receptors to US 101 (R-1 and R-9), and the nearest to Betabel Road (R-9) where the project traffic generation would be most concentrated. The noise levels from each roadway segment were modeled individually at both receptors then combined to arrive at a cumulative existing traffic noise exposure from all roadways. Complete listings of FHWA Model Inputs for all project scenarios are provided in Appendix E. Tables 7 through 10 show the predicted traffic noise levels for each project scenario and the increases in traffic noise levels at the nearest receptors for each project scenario.

Table 7
Existing Vs. Existing Plus Project Traffic Noise Levels at Nearest Sensitive Receptors (DNL, dBA)
Betabel Commercial Development – San Benito County

Receptor	Roadway	Segment	Existing No Project		Existing + Project		Traffic Noise Increase	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
R-1	Betabel Rd	North of Lomerias O/C	14.6	13.2	14.6	13.8	0.0	0.5
R-1	Betabel Rd	South of Lomerias O/C	19.1	19.9	32.2	32.8	13.2	12.9
R-1	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	17.8	17.7	29.7	30.2	11.9	12.5
R-1	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	16.6	15.0	26.9	27.2	10.3	12.2
R-1	Lomerias O/C	US 101 N/B Ramps to Y Road	13.5	12.7	13.5	13.3	0.0	0.6
R-1	Y Road	North of Lomerias O/C	13.0	1.2	13.0	7.2	0.0	6.0
R-1	Y Road	South of Lomerias O/C	40.4	42.0	40.4	42.0	0.0	0.0
R-1	US 101 S/B Ramp	North of Lomerias O/C	23.6	24.2	33.0	33.7	9.4	9.5
R-1	US 101 S/B Ramp	South of Lomerias O/C	24.7	21.7	32.4	32.2	7.7	10.6
R-1	US 101 N/B Ramp	North of Lomerias O/C	23.2	22.6	31.2	31.2	8.1	8.6
R-1	US 101 N/B Ramp	South of Lomerias O/C	22.1	22.4	31.8	34.6	9.6	12.2
R-1	Highway 101	Lomarias O/C to Hwy 129	59.7	57.7	60.1	58.2	0.4	0.5
R-1	**Combined Traffic Noise at R-1 from All Roadways:**		**59.8**	**57.8**	**60.2**	**58.4**	**0.4**	**0.5**
R-9	Betabel Rd	North of Lomerias O/C	41.3	28.2	41.3	28.8	0.0	0.5
R-9	Betabel Rd	South of Lomerias O/C	45.7	46.6	58.9	59.5	13.2	12.9
R-9	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	33.9	33.9	45.9	46.4	11.9	12.5
R-9	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	31.6	30.0	41.9	42.2	10.3	12.2
R-9	Lomerias O/C	US 101 N/B Ramps to Y Road	25.2	24.4	25.2	25.0	0.0	0.6
R-9	Y Road	North of Lomerias O/C	23.4	11.7	23.4	17.7	0.0	6.0
R-9	Y Road	South of Lomerias O/C	29.9	31.5	29.9	31.5	0.0	0.0
R-9	US 101 S/B Ramp	North of Lomerias O/C	36.4	37.0	45.8	46.5	9.4	9.5
R-9	US 101 S/B Ramp	South of Lomerias O/C	47.5	44.5	55.2	55.0	7.7	10.6
R-9	US 101 N/B Ramp	North of Lomerias O/C	34.8	34.3	42.9	42.9	8.1	8.6
R-9	US 101 N/B Ramp	South of Lomerias O/C	40.3	40.6	49.9	52.8	9.6	12.2
R-9	Highway 101	Lomarias O/C to Hwy 129	68.2	66.2	68.6	66.7	0.4	0.5
R-9	**Combined Traffic Noise at R-9 from All Roadways:**		**68.3**	**66.3**	**69.4**	**67.9**	**1.1**	**1.6**

Note: Receptor locations are identified on Figure 1
Sources: FHWA-RD-77-108, BAC, Caltrans, and the Project Traffic Study

Table 8
Cumulative No Project Vs. Cumulative Plus Project Traffic Noise Levels (Year 2030) at Nearest Sensitive Receptors (DNL, dBA)
Betabel Commercial Development – San Benito County

Receptor	Roadway	Segment	Cumulative No Project		Cumulative + Project		Traffic Noise Increase	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
R-1	Betabel Rd	North of Lomerias O/C	14.6	15.4	14.6	15.4	0.0	0.0
R-1	Betabel Rd	South of Lomerias O/C	19.4	19.9	32.3	32.8	12.9	12.9
R-1	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	18.0	18.2	29.7	30.2	11.7	12.0
R-1	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	18.0	16.0	27.0	27.3	9.0	11.2
R-1	Lomerias O/C	US 101 N/B Ramps to Y Road	13.5	14.6	13.5	14.6	0.0	0.0
R-1	Y Road	North of Lomerias O/C	13.0	13.2	13.0	13.2	0.0	0.0
R-1	Y Road	South of Lomerias O/C	40.4	42.3	40.4	42.3	0.0	0.0
R-1	US 101 S/B Ramp	North of Lomerias O/C	25.4	24.3	33.2	33.7	7.8	9.4
R-1	US 101 S/B Ramp	South of Lomerias O/C	24.7	24.0	32.4	32.4	7.7	8.4
R-1	US 101 N/B Ramp	North of Lomerias O/C	24.6	22.6	31.4	31.2	6.8	8.6
R-1	US 101 N/B Ramp	South of Lomerias O/C	23.8	23.3	31.9	34.7	8.1	11.4
R-1	Highway 101	Lomarias O/C to Hwy 129	61.2	59.2	61.5	59.5	0.3	0.3
R-1	**Combined Traffic Noise at R-1 from All Roadways:**		**61.2**	**59.3**	**61.5**	**59.6**	**0.3**	**0.4**
R-9	Betabel Rd	North of Lomerias O/C	41.3	30.4	41.3	30.4	0.0	0.0
R-9	Betabel Rd	South of Lomerias O/C	46.1	46.6	58.9	59.5	12.9	12.9
R-9	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	34.2	34.4	45.9	46.4	11.7	12.0
R-9	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	33.0	31.0	42.0	42.3	9.0	11.2
R-9	Lomerias O/C	US 101 N/B Ramps to Y Road	25.2	26.3	25.2	26.3	0.0	0.0
R-9	Y Road	North of Lomerias O/C	23.4	23.7	23.4	23.7	0.0	0.0
R-9	Y Road	South of Lomerias O/C	29.9	31.9	29.9	31.9	0.0	0.0
R-9	US 101 S/B Ramp	North of Lomerias O/C	38.2	37.1	46.0	46.5	7.8	9.4
R-9	US 101 S/B Ramp	South of Lomerias O/C	47.5	46.8	55.2	55.3	7.7	8.4
R-9	US 101 N/B Ramp	North of Lomerias O/C	36.2	34.3	43.1	42.9	6.8	8.6
R-9	US 101 N/B Ramp	South of Lomerias O/C	42.0	41.5	50.1	52.8	8.1	11.4
R-9	Highway 101	Lomarias O/C to Hwy 129	69.7	67.7	70.0	68.0	0.3	0.3
R-9	**Combined Traffic Noise at R-9 from All Roadways:**		**69.8**	**67.8**	**70.5**	**69.0**	**0.8**	**1.2**

Note: Receptor locations are identified on Figure 1
Sources: FHWA-RD-77-108, BAC, Caltrans, and the Project Traffic Study

Table 9
Cumulative No Project Vs. Cumulative Plus Strata Verde Project (Interim Development) Traffic Noise Levels (Year 2030) at Nearest Sensitive Receptors (DNL, dBA)
Betabel Commercial Development – San Benito County

Receptor	Roadway	Segment	Cumulative No Project		Cumulative + Project		Traffic Noise Increase	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
R-1	Betabel Rd	North of Lomerias O/C	14.6	15.4	14.6	15.4	0.0	0.0
R-1	Betabel Rd	South of Lomerias O/C	19.4	19.9	19.4	19.9	0.0	0.0
R-1	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	18.0	18.2	18.0	18.2	0.0	0.0
R-1	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	18.0	16.0	28.2	17.9	10.2	1.9
R-1	Lomerias O/C	US 101 N/B Ramps to Y Road	13.5	14.6	30.7	19.2	17.2	4.6
R-1	Y Road	North of Lomerias O/C	13.0	13.2	33.3	20.8	20.3	7.6
R-1	Y Road	South of Lomerias O/C	40.4	42.3	40.4	42.3	0.0	0.0
R-1	US 101 S/B Ramp	North of Lomerias O/C	25.4	24.3	35.5	25.2	10.1	0.9
R-1	US 101 S/B Ramp	South of Lomerias O/C	24.7	24.0	31.6	25.4	6.9	1.4
R-1	US 101 N/B Ramp	North of Lomerias O/C	24.6	22.6	33.7	25.4	9.1	2.8
R-1	US 101 N/B Ramp	South of Lomerias O/C	23.8	23.3	31.0	25.2	7.2	1.9
R-1	Highway 101	Lomarias O/C to Hwy 129	61.2	59.2	61.2	59.2	0.0	0.0
R-1	**Combined Traffic Noise at R-1 from All Roadways:**		**61.2**	**59.3**	**61.2**	**59.3**	**0.0**	**0.0**
R-9	Betabel Rd	North of Lomerias O/C	41.3	30.4	41.3	30.4	0.0	0.0
R-9	Betabel Rd	South of Lomerias O/C	46.1	46.6	46.1	46.6	0.0	0.0
R-9	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	34.2	34.4	34.2	34.4	0.0	0.0
R-9	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	33.0	31.0	43.2	32.9	10.2	1.9
R-9	Lomerias O/C	US 101 N/B Ramps to Y Road	25.2	26.3	42.4	30.9	17.2	4.6
R-9	Y Road	North of Lomerias O/C	23.4	23.7	43.8	31.3	20.3	7.6
R-9	Y Road	South of Lomerias O/C	29.9	31.9	29.9	31.9	0.0	0.0
R-9	US 101 S/B Ramp	North of Lomerias O/C	38.2	37.1	48.3	38.0	10.1	0.9
R-9	US 101 S/B Ramp	South of Lomerias O/C	47.5	46.8	54.4	48.2	6.9	1.4
R-9	US 101 N/B Ramp	North of Lomerias O/C	36.2	34.3	45.4	37.1	9.1	2.8
R-9	US 101 N/B Ramp	South of Lomerias O/C	42.0	41.5	49.2	43.4	7.2	1.9
R-9	Highway 101	Lomarias O/C to Hwy 129	69.7	67.7	69.7	67.7	0.0	0.0
R-9	**Combined Traffic Noise at R-9 from All Roadways:**		**69.8**	**67.8**	**70.0**	**67.8**	**0.2**	**0.0**

Note: Receptor locations are identified on Figure 1
Sources: FHWA-RD-77-108, BAC, Caltrans, and the Project Traffic Study

Table 10
Cumulative No Project Vs. Cumulative + Project + Strata Verde Project (Interim Development) Traffic Noise Levels (Year 2030) at Nearest Sensitive Receptors (DNL, dBA)
Betabel Commercial Development – San Benito County

Receptor	Roadway	Segment	Cumulative No Project		Cumulative + Project		Traffic Noise Increase	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
R-1	Betabel Rd	North of Lomerias O/C	14.6	15.4	14.6	15.4	0.0	0.0
R-1	Betabel Rd	South of Lomerias O/C	19.4	19.9	32.3	32.8	12.9	12.9
R-1	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	18.0	18.2	29.7	30.2	11.7	12.0
R-1	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	18.0	16.0	30.4	27.4	12.4	11.4
R-1	Lomerias O/C	US 101 N/B Ramps to Y Road	13.5	14.6	30.7	19.2	17.2	4.6
R-1	Y Road	North of Lomerias O/C	13.0	13.2	33.3	20.8	20.3	7.6
R-1	Y Road	South of Lomerias O/C	40.4	42.3	40.4	42.3	0.0	0.0
R-1	US 101 S/B Ramp	North of Lomerias O/C	25.4	24.3	37.2	33.8	11.8	9.5
R-1	US 101 S/B Ramp	South of Lomerias O/C	24.7	24.0	34.6	32.6	9.9	8.7
R-1	US 101 N/B Ramp	North of Lomerias O/C	24.6	22.6	35.4	31.7	10.8	9.1
R-1	US 101 N/B Ramp	South of Lomerias O/C	23.8	23.3	34.1	34.9	10.3	11.5
R-1	Highway 101	Lomarias O/C to Hwy 129	61.2	59.2	61.5	59.5	0.3	0.3
R-1	**Combined Traffic Noise at R-1 from All Roadways:**		**61.2**	**59.3**	**61.6**	**59.6**	**0.4**	**0.4**
R-9	Betabel Rd	North of Lomerias O/C	41.3	30.4	41.3	30.4	0.0	0.0
R-9	Betabel Rd	South of Lomerias O/C	46.1	46.6	58.9	59.5	12.9	12.9
R-9	Lomerias O/C	Betabel Rd to US 101 S/B Ramps	34.2	34.4	45.9	46.4	11.7	12.0
R-9	Lomerias O/C	US 101 S/B Ramps to US 101 N/B Ramps	33.0	31.0	45.4	42.4	12.4	11.4
R-9	Lomerias O/C	US 101 N/B Ramps to Y Road	25.2	26.3	42.4	30.9	17.2	4.6
R-9	Y Road	North of Lomerias O/C	23.4	23.7	43.8	31.3	20.3	7.6
R-9	Y Road	South of Lomerias O/C	29.9	31.9	29.9	31.9	0.0	0.0
R-9	US 101 S/B Ramp	North of Lomerias O/C	38.2	37.1	50.0	46.7	11.8	9.5
R-9	US 101 S/B Ramp	South of Lomerias O/C	47.5	46.8	57.4	55.5	9.9	8.7
R-9	US 101 N/B Ramp	North of Lomerias O/C	36.2	34.3	47.0	43.4	10.8	9.1
R-9	US 101 N/B Ramp	South of Lomerias O/C	42.0	41.5	52.3	53.0	10.3	11.5
R-9	Highway 101	Lomarias O/C to Hwy 129	69.7	67.7	70.0	68.0	0.3	0.3
R-9	**Combined Traffic Noise at R-9 from All Roadways:**		**69.8**	**67.8**	**70.7**	**69.0**	**0.9**	**1.2**

Note: Receptor locations are identified on Figure 1
Sources: FHWA-RD-77-108, BAC, Caltrans, and the Project Traffic Study

Prediction of Future Traffic Noise Levels at Receptors Proposed within the Betabel Development

The project includes a range of new commercial, lodging, and recreational uses on the site. Specifically, the project proposes a gas station and convenience store, a restaurant, amusement buildings, a visitor center, a motel, an outdoor event center and open space. The noise sensitivity of the proposed uses varies. The future traffic noise environment at the proposed uses will be defined by cumulative US 101 traffic (2030 + Betabel project + Strata Verde project [interim development]).

To predict future traffic noise exposure generated by US 101 traffic at the proposed uses within the project site in terms of day/night average levels (DNL), the calibrated FHWA Traffic Noise Model (FHWA-RD-77-108) was used. An additional offset of -10 dBA was applied to the proposed motel pool area to account for shielding of that area which will be provided by intervening buildings. To predict interior noise levels within the proposed motel use, an offset of -30 dBA was applied to the exterior noise levels predicted at the motel building façade to account for the noise attenuation which will be provided by the motel building itself. The FHWA Model inputs for the evaluation of future US 101 traffic noise levels at the uses proposed within the project site are provided in Appendix F. Table 11 shows the predicted future traffic noise levels at the uses proposed within the project site. Table 11 also shows the noise standards of the San Benito County General Plan (Table 9-1) which would be applicable to each of the proposed uses.

Table 11
Future Traffic Noise Levels at Proposed Uses within the Betabel Development
Betabel Commercial Development – San Benito County

			San Benito County General Plan Noise Standards			
Period	Use	Future DNL	Land Use Category	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable
Weekday	Convenience Store	70	Commercial	65	75	80
Weekday	Restaurant	69	Commercial	65	75	80
Weekday	Motel Exterior	69	Motel	65	70	80
Weekday	Motel Interior	39	Motel	45	--	--
Weekday	Motel Pool	59	Motel	65	75	80
Weekday	Farmstand	68	Commercial	65	75	80
Weekday	Outdoor Events Ctr	68	Amphitheaters	--	60	70
Weekend	Convenience Store	70	Commercial	65	75	80
Weekend	Restaurant	69	Commercial	65	75	80
Weekend	Motel Exterior	69	Motel	65	70	80
Weekend	Motel Interior	39	Motel	45		
Weekend	Motel Pool	59	Motel	65	75	80
Weekend	Farmstand	68	Commercial	65	75	80
Weekend	Outdoor Events Ctr	68	Amphitheaters	--	60	70

Note: Receptor locations are identified on Figure 1
Sources: FHWA-RD-77-108, BAC, Caltrans, and the Project Traffic Study

Prediction of On-Site Traffic Circulation / Parking Lot Noise at Off-Site Sensitive Receptors

To predict worst-case noise generated by on-site circulation and parking lot movements, parking lot noise measurement data were utilized with forecasts of peak hour project trip generation. The noise measurement data consisted of a series of individual noise measurements of multiple vehicle types arriving and departing a parking area, including engines starting and stopping, car doors opening and closing, and persons conversing as they entered and exited the vehicles. The resulting typical (average) reference noise level for individual parking lot movements is a Sound Exposure Level (SEL) of 65 dBA at a reference distance of 50 feet from the parking lot operation.

According to the project traffic study, peak hour trip generation for weekday and weekend periods will be 512 and 564 hourly vehicles, respectively. The project site plan shown on Figure 2 indicates that there are multiple project site accesses from Betabel Road and four primary parking areas. Those areas are generally associated with the gas station/mini mart, the farmstand area, the motel, and the event center. For a reasonably conservative assessment of project on-site circulation and parking area noise generation, it was assumed that peak hour project trip generation would utilize the four parking areas in equal proportions (25% each). Resulting parking area noise exposure was computed using the following equation:

$$\text{Peak Hour } L_{eq} = 65+10*\log(N) - 35.6 - 20*\log(D/50)$$

Where 65 is the SEL for a single automobile parking operation at a reference distance of 50 feet, N is the number of parking area operations in a peak hour, 35.6 is 10 times the logarithm of the number of seconds in an hour, and D represents the distance from the effective noise center of the parking area to the nearest sensitive receptor.

The nearest sensitive receptor to the project site is receptor R-9; the Betabel RV Resort to the immediate north of the project site. The distance from the center of each parking area to the pool area of R-9 was scaled from aerial imagery and the average noise level (L_{eq}) for each parking area was computed. Using those distances and the assumptions and formula cited above results in a total peak hour parking lot noise generation of 36 dBA L_{eq} at the nearest sensitive receptor (R-9). Worst case maximum noise levels generated by on-site circulation and parking lot movements is expected to be approximately 10 dBA higher than predicted average noise levels, or 46 dBA L_{max} at the nearest receptor.

The next closest receptors to the project site are receptors R-1 and R-8, located approximately 3,000 feet from the effective noise center of the parking areas. At that distance, on-site circulation and parking lot noise generation would be approximately 15 dBA lower than at receptor R-9, or 21 dBA L_{eq} and 31 dBA L_{max}. At more distant receptors noise generated by on site circulation and parking lot activities would be even lower.

Prediction of Commercial Truck Circulation / Delivery Noise at Off-Site Sensitive Receptors

Truck deliveries would be required to provide retail merchandise, food, fuel, equipment and other consumables to the project site. The specific number of peak hour truck deliveries to the project site is not precisely known at this time. As a result, the analysis of on-site truck circulation and

unloading conservatively assumes 12 commercial heavy truck deliveries per hour, concentrated near the gas station/mini mart, restaurant and motel (4 truck deliveries/hr at each location).

Heavy truck arrivals and departures, and on-site truck circulation, will occur at low speeds. According to BAC file data, single-event truck passby noise levels are approximately 74 dB L_{max} and 83 dB SEL at a reference distance of 50 feet. Based on a conservative 12 heavy truck trips per hour, and an SEL of 83 dBA at 50 feet per passby, the hourly average noise level generated by on-site circulation computes to 39 dB L_{eq} at the nearest sensitive receptor to the project site (R-9). Predicted maximum noise levels generated by heavy truck circulation on the project site computes to 58 dBA L_{max} at the nearest receptor (R-9).

The next closest receptors to the project site are receptors R-1 and R-8, located approximately 3,000 feet from the effective noise center of the parking areas. At that distance, on-site heavy truck circulation would be approximately 15 dBA lower than at receptor R-9, or approximately 24 dBA L_{eq} and 43 dBA L_{max}. At more distant receptors noise generated by on site circulation and parking lot activities would be even lower.

Prediction of Outdoor Event Noise at Off-Site Sensitive Receptors

The proposed outdoor event center component of the project is located in the southern portion of the site as indicated on Figure 2. The exact extent of special events has not yet been determined by the applicant. The outdoor event area would not include a permanent amplified sound system; all live entertainment and cultural events would bring their own temporary sound equipment.

The outdoor event center would provide entertainment and outdoor events for up to 500 people. The area is proposed as an open-air venue and would have a tiered lawn area with concrete audience seating and a raised presentation area. Typical events may include educational presentations, cultural events, music, and live performances. The outdoor event area would also feature a 900-sf restroom and a small concession stand. All events at the outdoor event area would be required to end by 10:00 p.m.

For purposes of providing a reasonable worst-case analysis of potential noise generation at the event center, it was assumed that the event would be a concert with 500 people in attendance. The event center stage is proposed to face east, away from the majority of the nearby sensitive receptors located to the west of the project site. With the exception of stage monitors, the speakers used during a concert at this venue would similarly face towards the east. Due to the directionality of speakers, this measure will substantially reduce the noise exposure at existing residences to the west of the project site.

To quantify the sound propagation from the amphitheater during a concert event, BAC utilized the SoundPlan 8.2 model. SoundPlan is a state-of-the-art, three-dimensional, sound propagation model. Inputs to the model included local aerial photography and topography, receptor locations, sound levels and frequency content of music events, noise generated by crowd cheering, and inputs pertaining to speaker locations and directionality of those speakers.

To provide a reasonable worst-case assessment of amphitheater sound generation, reference sound pressure levels of 95 dB L_{eq} and 100 dB L_{max} were assumed at a distance of 100 feet from the front of the stage during a typical concert. Crowd noise generated during a concert event was modeled assuming 500 people in attendance clapping and talking/cheering during 50% of the hour at levels ranging from normal speech to loud shouting. The resulting reference sound levels for crowd noise during a concert event compute to 79 dBA L_{eq} and 93 dBA L_{max} at a distance of 50 feet from the effective center of the seating area.

The SoundPlan model was used with the aforementioned inputs and assumptions to generate both average (L_{eq}) and maximum (L_{max}) noise level contours for a concert event. The noise contour plots are provided in Figures 5 and 6. The noise generated by other activities at the outdoor event center are expected to be appreciably lower than the noise generated during a concert event.

Prediction of Mechanical Equipment Noise at Off-Site Sensitive Receptors

Mechanical equipment (HVAC) systems will be utilized to maintain comfortable temperatures within future buildings of the Betabel development. Such systems typically consist of packaged rooftop air conditioning systems. Rooftop HVAC units typically stand 4-5 feet above the roof, and would be shielded from view of nearby sensitive uses by the building parapets. Such rooftop HVAC units frequently generate a noise level of approximately 45 dB L_{eq} at a reference distance of 100 feet from the building facade, including shielding by the building parapet.

The noise sensitive area of the nearest existing noise-sensitive use to the project site (R-9: Betabel RV Resort to the north), is located approximately 150 feet from the closet location where rooftop HVAC systems would be positioned (the proposed convenience store). When the reference level of 45 dBA L_{eq} is projected to a distance of 150 feet, HVAC equipment noise exposure at that nearest receptor to the north computes to approximately 40 dB L_{eq}, including the shielding provided by the building parapet. Noise levels at the next closest sensitive receptors identified on Figure 1 would be significantly lower due to the substantial distance between the project site and those sensitive receptors. For example, the next closest sensitive receptor (R-1), is in excess of 3,000 feet from the nearest location of project HVAC equipment. At that distance, HVAC noise levels are expected to be approximately 30 dBA lower than at receptor R-9, or 10 dBA L_{eq}.

Prediction of Combined Noise Exposure from All On-Site Noise Sources

The noise generation of the individual on-site noise sources associated with the project were combined to determine the overall project noise exposure at the nearest sensitive receptors to the project site. The resulting average noise level at the nearest sensitive receptor (R-9) when all on-site noise sources are occurring simultaneously computes to approximately 51 dBA L_{eq} and 60 dBA L_{max}. At more distant receptors the predicted average and maximum noise levels would be at least 15 dB lower than those occurring at Receptor R-9. It should be noted that the maximum project noise generation would occur during daytime hours.

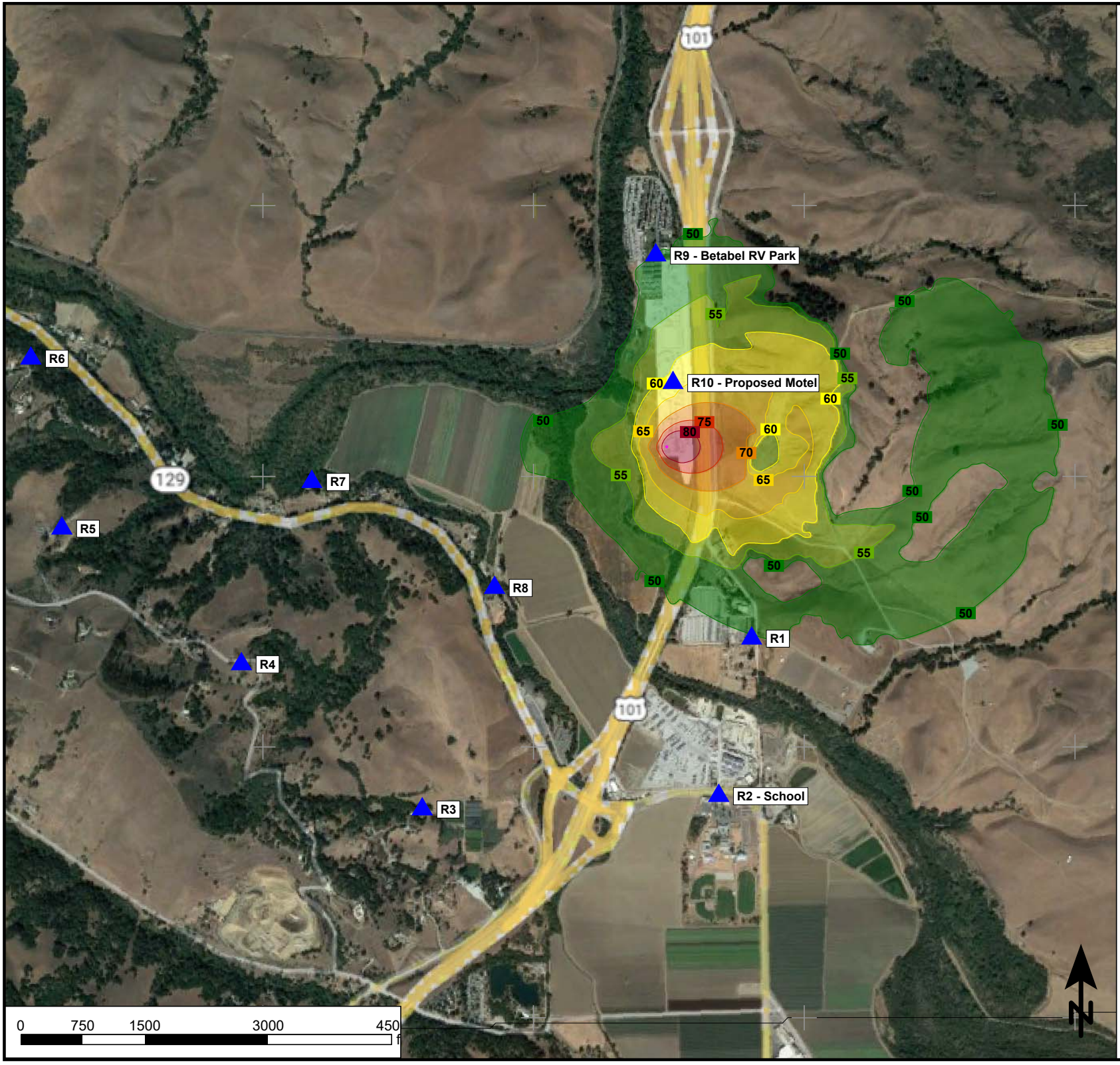

Figure 5
Betabel Amphitheater
Average Noise
Contours (Leq)
for Concert Event

Leq, dB(A)

>=	80
75 -	80
70 -	75
65 -	70
60 -	65
55 -	60
50 -	55

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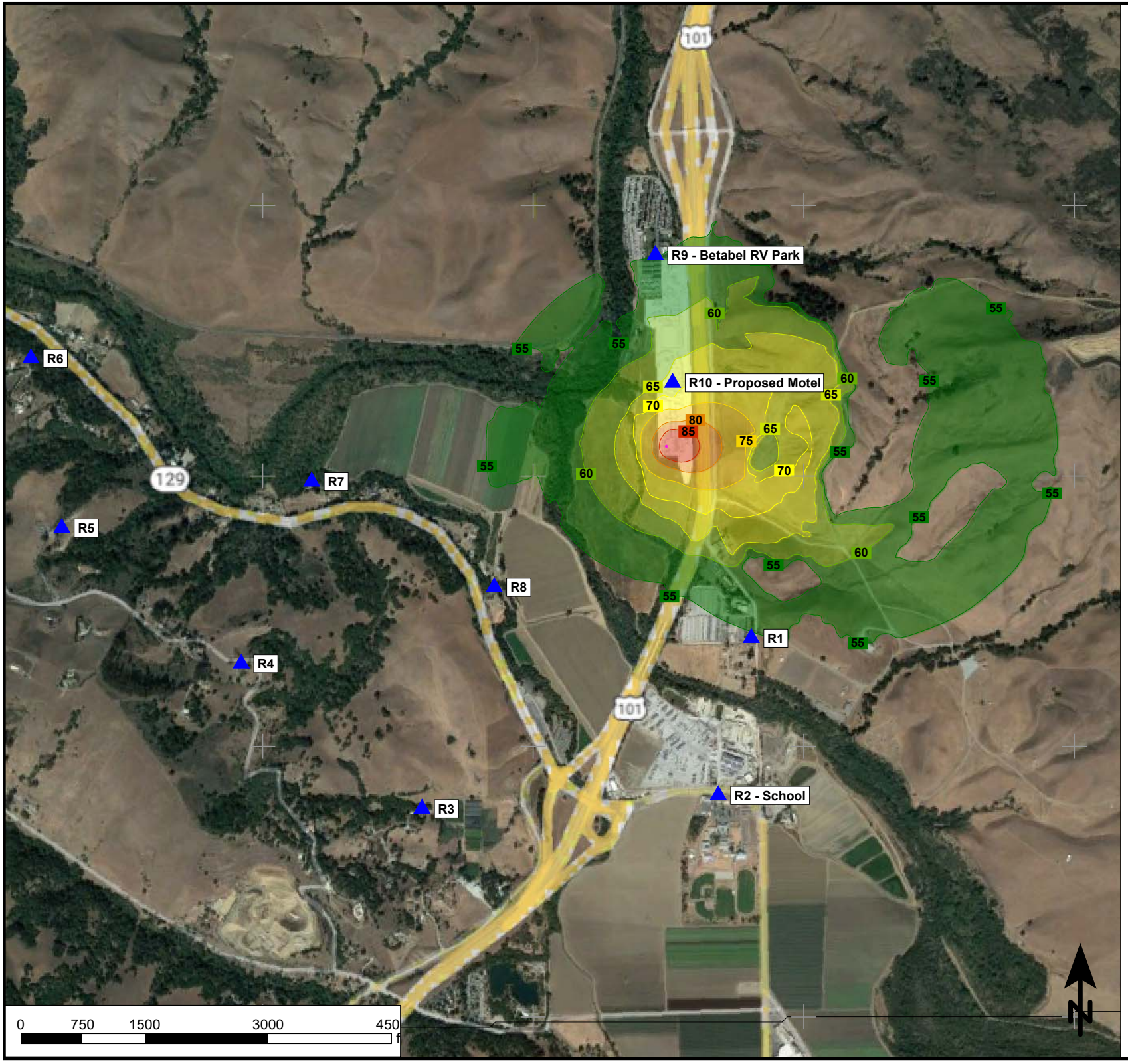

Figure 6
Betabel Amphitheater
Maximum Noise
Contours (Lmax)
for Concert Event

Lmax, dB(A)

>=	90
85 -	90
80 -	85
75 -	80
70 -	75
65 -	70
60 -	65
55 -	60

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Prediction of Project Construction Noise at Off-Site Sensitive Receptors

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would temporarily increase ambient noise levels when in use. Noise levels would vary depending on the number and type of equipment used, and the locations on the project site where that equipment is being operated.

The nearest noise-sensitive area of the nearest receptor to the project site, the pool area of the Betabel RV Resort (R-9), is approximately 100 feet from the nearest on-site construction activities, but the majority of project construction would occur significantly further away from that receptor.

Table 12 shows the range of maximum noise levels for equipment commonly used in general construction projects at full-power operation at a distance of 50 feet. Not all of these construction activities would be required of this project. The Table 12 data also include predicted maximum equipment noise levels at the nearest identified noise-sensitive uses located approximately 100 feet away, which assume a standard spherical spreading loss of 6 dB per doubling of distance.

Table 12
Construction Equipment Reference Noise Levels (50 feet) and Predicted Noise Levels at Nearest Sensitive Receptor (100 feet).

Equipment Description	Maximum Noise Level at 50 Feet, dBA	Predicted Maximum Noise Level at 100 feet, dBA
Air compressor	80	74
Backhoe	80	74
Compactor	82	76
Concrete mixer	85	79
Concrete pump	82	76
Concrete vibrator	76	70
Crane, mobile	83	77
Dozer	85	79
Generator	82	76
Grader	85	79
Impact wrench	85	79
Jack hammer	88	82
Loader	80	74
Paver	85	79
Pneumatic tools	85	79
Scraper	85	79
Shovel	82	76
Truck	84	78

Source: Federal Transit Administration, Noise and Vibration Impact Assessment Manual, Table 7-1 (2018)

Based on the equipment noise levels provided in Table 12, worst-case on-site project construction equipment noise levels at the nearest existing noise-sensitive receptor (R-9) are expected to range from approximately 74 to 82 dB L_{max}. Average noise levels generated by project construction would be appreciably lower than maximum noise levels. In addition, maximum and average noise levels generated during project construction at more distant receptors would be substantially lower.

Prediction of Project Construction Vibration at Off-Site Sensitive Receptors

During project construction, heavy equipment would be used for grading excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of the construction. As mentioned previously, the nearest sensitive receptor (R-9) is located approximately 100 feet from construction activities which would occur within the project area.

Table 13 provides a range of vibration levels for equipment commonly used in general construction projects at a distance of 25 feet. The Table 13 data also include predicted equipment vibration levels at the nearest existing sensitive receptor (R-9) to the proposed project area located approximately 100 feet away.

Table 13
Construction Equipment Reference Vibration Levels and Predicted Levels at 80 Feet

Equipment	Maximum Groundborne Vibration Impact Levels, RMS Lv[1]	
	Reference Vibration Impact Level at 25 feet[2]	Predicted Vibration Impact Level at 100 Feet
Hoe ram	87	63
Large bulldozer	87	63
Loaded trucks	86	62
Jackhammer	79	57
Bulldozer	58	53

[1] RMS velocity in decibels (VdB) re 1 micro-inch/second

[2] Reference vibration level obtained from the 2018 Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual, Table 7-4, and were projected to 100 feet using equation 7-3.

Source: FTA Transit Noise and Vibration Impact Assessment Manual (2018)

Specific Noise & Vibration Impacts Due to the Betabel Project

Impact 1: Increases in Existing Traffic Noise Levels due to the Project

Table 7 indicates that traffic noise level increases on some roadway segments in the immediate project vicinity would increase substantially as a result of the project. Specifically, traffic noise increases resulting from the project on individual roadway segments are predicted to range from 0.0 to 13.2 dBA DNL. However, the noise generation of traffic on US 101 is substantially higher than the noise generation of Betabel and Y Roads, the Lomerias overcrossing, and the US 101 access ramps at the Lomerias overcrossing. As a result, the net traffic noise level increase resulting from the project at the two nearest sensitive receptors to the project site (receptors R-1 and R-9) would only be 0.4 to 1.1 dB DNL on weekdays and 0.5 to 1.6 dB DNL on weekends. These increases are below the 5 dB FICON significance criteria shown in Table 4 for receptor 1 but would exceed the 1.5 dB FICON significance criteria at Receptor 9 (Betabel RV Resort). Although the exceedance of the threshold is only 0.1 dB and would only occur on weekends, because the criteria is predicted to be exceeded, ***this impact is considered significant.***

Discussion of Noise Mitigation Options

The mitigation of traffic noise impacts at existing off-site noise-sensitive receptors resulting from significant project-related traffic noise increases is frequently challenging because of a combination of limited mitigation options, constraints upon implementation of certain options, cost of implementation, and limited effectiveness of some options. Nonetheless, the following specific options for mitigation of off-site traffic noise impacts at the Betabel RV Resort were evaluated for this project:

A. **Reduction in Traffic Volumes:** Because one of the most important factors in traffic noise generation is daily vehicle volume, a reduction in traffic noise levels can be achieved by reducing the overall volume of traffic which would be generated by the project. It should be noted, however, that a 3 dB reduction in traffic noise levels would require a 50% reduction in projected traffic volumes. So, this measure would require a substantial decrease in traffic volume to achieve an appreciable decrease in traffic noise levels. As a result, it is unlikely that this measure would be a feasible means of fully mitigating this noise impact.

B. **Reduction in Vehicle Speeds:** Another factor in the generation of traffic noise is vehicle speed. Higher speeds translate to higher traffic noise levels. However, vehicle speed limits are set based on speed surveys, safety considerations, and other factors, and cannot be arbitrarily reduced to achieve lower traffic noise levels. As a result, this measure would not likely be a feasible means of mitigating this noise impact.

C. **Construction of Noise Barriers:** Appreciable reductions in traffic noise levels can be achieved through the construction of traffic noise barriers. However, this measure would require construction of noise barriers on the property of the impacted receptor (Betabel RV Resort), rather than within a public right-of-way, so there is no guarantee the impacted receptor would agree to the construction of such barriers. Furthermore, the construction of off-site traffic noise barriers could be extremely costly per benefitted receptor, potentially rendering this measure infeasible.

D. **Use of Setbacks:** A 4.5 dB decrease in traffic noise levels can be achieved for each doubling of distance between the roadway centerline and affected residences. However, because the locations of the Betabel RV Resort and Betabel Road are fixed, increasing the distance between the source and receptor would not be feasible and this measure is not viable.

E. **Noise-Reducing Pavement:** Noise-reducing pavement types, such as rubberized asphalt, have been shown to provide an appreciable noise level reduction relative to conventional pavement types (approximately 3-4 dB over conventional asphalt overlays over time). Because a 3-4 dB decrease in Betabel Road traffic noise levels would decrease the overall project-related increase in traffic noise at the Betabel RV Resort to below the 1.5 dB threshold of significance, and because the project proposes the repaving of Betabel Road, this measure would both be sufficient to fully mitigate this impact and would be feasible.

Mitigation for Impact 1:

MM 1: Betabel Road should be repaved with noise-reducing asphalt such as rubberized asphalt, gap-graded asphalt, or other materials providing 3-4 dB of traffic noise attenuation over time as compared to conventional asphalt overlays.

Significance of Impact 1 after Mitigation: ***Less than Significant***

Impact 2: Increases in Cumulative Traffic Noise Levels due to the Project

Table 8 indicates that increases in cumulative traffic noise levels on some roadway segments in the immediate project vicinity would be substantial as a result of the project. Specifically, cumulative traffic noise increases resulting from the project on individual roadway segments are predicted to range from 0.0 to12.9 dBA DNL. However, the noise generation of traffic on US 101 is substantially higher than the noise generation of Betabel and Y Roads, the Lomerias overcrossing, and the US 101 access ramps at the Lomerias overcrossing. As a result, the net cumulative traffic noise level increase resulting from the project at the two nearest sensitive receptors to the project site (receptors R-1 and R-9) would only be 0.3 to 0.8 dB DNL on weekdays and 0.4 to 1.2 dB DNL on weekends. These increases are below the 3 dB FICON significance criteria at receptor R-1 and below the 1.5 dB FICON significance criteria at receptor R-9. As a result, ***this impact is considered less-than-significant.***

Impact 3: Parking Lot Circulation Noise at Existing Sensitive Uses

As indicated in the methodology section, the total peak hour parking lot noise generation is predicted to be 36 dBA L_{eq} and 46 dBA L_{max} at the nearest sensitive receptor (R-9) to the project site. The next closest receptors to the project site are receptors R-1 and R-8, located approximately 3,000 feet from the effective noise center of the parking areas. At those receptors, on-site circulation and parking lot noise generation would be approximately 21 dBA L_{eq} and 31 dBA L_{max}. At more distant receptors noise generated by on site circulation and parking lot activities would be even lower.

The San Benito County General Plan establishes noise level standards of 55 dB L_{eq} and 70 dB L_{max} during the daytime hours in which the project noise generation would be highest. The predicted worst-case parking lot circulation noise levels of 21 dBA L_{eq} and 31 dBA L_{max} are more than 30 dBA below the adopted County General Plan noise standards. In addition, predicted parking lot circulation noise levels are well below existing ambient noise exposure in the project vicinity. As a result, ***this impact is considered less-than-significant.***

Impact 4: Commercial Truck Circulation Noise at Existing Sensitive Uses

As indicated in the methodology section, the total peak hour noise generation of commercial truck deliveries to the project site is predicted to be approximately 39 dBA L_{eq} and 58 dBA L_{max} at the nearest sensitive receptor (R-9) to the project site.

The next closest receptors to the project site are receptors R-1 and R-8, located approximately 3,000 feet from the effective noise center of the parking areas. At those receptors, on-site heavy

truck circulation would be approximately 24 dBA L_{eq} and 43 dBA L_{max}. At more distant receptors noise generated by on site circulation and parking lot activities would be even lower.

The San Benito County General Plan establishes noise level standards of 55 dB L_{eq} and 70 dB L_{max} during the daytime hours in which the project noise generation would be highest. The predicted worst-case truck delivery noise levels of 39 dBA L_{eq} and 58 dBA L_{max} are well below the adopted County General Plan noise standards. In addition, predicted truck delivery noise levels are well below existing ambient noise exposure in the project vicinity. As a result, ***this impact is considered less-than-significant.***

Impact 5: HVAC Equipment Noise at Existing Sensitive Uses

As indicated in the methodology section, the worst-case noise generation of HVAC equipment operating at the project site is predicted to be approximately 40 dBA L_{eq} at the nearest sensitive receptor (R-9) to the project site.

Noise levels at the next closest sensitive receptors identified on Figure 1 would be significantly lower due to the substantial distance between the project site and those sensitive receptors. Specifically, at receptors R-1 and R-8, HVAC noise levels are expected to be approximately 10 dBA L_{eq}.

The San Benito County General Plan establishes daytime and nighttime noise level standards of 55 dB and 45 dBA L_{eq}, respectively, at existing residential uses. The predicted worst-case HVAC noise level of 40 dBA L_{eq} is below the adopted County General Plan noise standards. In addition, predicted HVAC noise levels are well below existing ambient noise exposure in the project vicinity. As a result, ***this impact is considered less-than-significant.***

Impact 6: Outdoor Event Center Noise at Existing Sensitive Uses

Figures 5 and 6 show the predicted noise generation of a typical concert held at the proposed outdoor event center. Figures 5 and 6 indicate that concert sound levels would be 50 dB L_{eq} or lower and 55 dB L_{max} or lower at each of the nearest sensitive receptors in the project vicinity. All activities at the outdoor event center would occur during daytime hours.

The San Benito County General Plan establishes daytime noise level standards of 55 dBA L_{eq} and 70 dBA L_{max} at existing residential uses. The predicted worst-case event center noise generation of 50 dB L_{eq} and 55 dBA L_{max} would satisfy the adopted County General Plan noise standards at the nearest sensitive receptors to the project site. In addition, predicted event center noise levels are below existing ambient noise exposure at the nearest sensitive receptors in the project vicinity. As a result, ***this impact is considered less-than-significant.***

Impact 7: Combined Generation of All On-Site Noise Sources at Existing Sensitive Uses

As indicated in the methodology section, the noise generation of all on-site noise sources occurring simultaneously computes to approximately 51 dBA L_{eq} and 60 dBA L_{max} at the nearest sensitive receptor to the project site (R-9). At more distant receptors the predicted average and

maximum noise levels would be at least 15 dB lower than those occurring at Receptor 9 (R-9). It should be noted that the maximum project noise generation would occur during daytime hours.

The San Benito County General Plan establishes daytime and nighttime noise level standards of 55 dB and 45 dBA L_{eq}, respectively, at existing residential uses. The predicted worst-case combined noise exposure from all on-site noise sources of 51 dBA L_{eq} would satisfy the adopted County General Plan daytime noise standard. In addition, predicted overall project noise levels are well below existing ambient noise exposure in the project vicinity. As a result, ***this impact is considered less-than-significant.***

Impact 8: Project Construction Noise at Existing Sensitive Uses

The Table 12 data indicate that predicted maximum construction equipment noise levels at the nearest identified noise-sensitive receptor to the project site could range from approximately 74-82 dBA L_{max}. Appendix D indicates that measured existing daytime maximum noise levels in the immediate project vicinity frequently exceeded 80 dBA L_{max}, and exceeded 90 dBA L_{max} during several periods. As a result, maximum noise generated during daytime project construction activities is not predicted to substantially exceed baseline maximum noise levels currently experienced at the nearest sensitive receptors to the project site.

As noted in the Regulatory Setting section of this report, Section 19.39.051.H of the San Benito County Municipal Code exempts construction noise provided the activities do not occur during set hours. Construction activities are prohibited outside of the hours of 7:00 a.m. to 7:00 p.m. and may not occur on Sundays or federal holidays. Thus, provided project construction activities do not occur during prohibited hours, construction activities would be exempt, and this impact would be considered less than significant.

However, if construction activities are proposed during the hours not exempted by Municipal Code Section 19.39.051.H, noise levels generated by construction activities could exceed applicable County Code noise level standards at the nearest residences. As a result, noise impacts associated with construction activities are identified as being ***potentially significant***.

Mitigation for Impact 8

MM 2: The following measures should be incorporated into the project construction operations:

- Noise-generating construction activities shall not occur within the hours identified in Municipal Code Section 19.39.051.H.
- Noise-generating construction activities shall not occur within the hours identified in General Plan Policy HS-8.3.
- Pursuant to General Plan Policy HS-8.12, all construction projects within 500 feet of sensitive receptors shall develop and implement construction noise control plans that consider the following available controls:
    - Utilize “quiet” models of air compressors and other stationary noise sources where technology exists;

- Equip all internal combustion engine-driven equipment with mufflers, which are in good condition and appropriate for the equipment;
- Locate all stationary noise-generating equipment, such as air compressors and portable power generators, as far away as possible from adjacent land uses;
- Locate staging areas and construction material areas as far away as possible from adjacent land uses;
- Prohibit all unnecessary idling of internal combustion engines;
- Notify all abutting land uses of the construction schedule in writing; and
- Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise.

Significance of Impact 8 after Mitigation: *Less than Significant*

Impact 9: Construction Vibration Levels at Existing Sensitive Uses

As indicated in Table 13, vibration levels at the nearest sensitive receptor (R-9), are predicted to be approximately 53-63 VdB or less over the course of project construction activities. Construction-generated vibration levels of 63 VdB RMS or less would satisfy the strictest Federal Transportation Authority (FTA) groundborne vibration impact criteria of 72 VdB (regardless of number of vibration events which occur during any hour of project construction). Therefore, project construction would not result in the exposure of persons to excessive groundborne vibration levels. Because vibration levels generated during project construction will satisfy the strictest San Benito County General Plan (FTA) groundborne impact vibration criteria at the nearest sensitive receptor location, this impact is considered to be ***less-than-significant***.

Specific Noise & Vibration Impacts Upon the Betabel Project

The California Supreme Court issued an opinion in *California Building Industry Association v. Bay Area Air Quality Management District (2015)* holding that CEQA is primarily concerned with the impacts of a project on the environment and generally does not require agencies to analyze the impact of existing conditions on a project's future users or residents. Nevertheless, the County of San Benito has policies and ordinances that address existing/future conditions affecting the proposed project, which are discussed in the following section. Thus, the following section includes assessments of future traffic noise exposure at proposed noise-sensitive receptors within the project area.

Impact 10: Future Exterior Traffic Noise Levels at Proposed Uses within the Betabel Development

Table 11 shows the predicted future traffic noise exposure at each of the locations on the project site where noise-sensitivity was identified. Table 11 also shows the adopted San Benito County General Plan noise standards applicable to each use. As indicated by Table 11, future US 101 traffic noise exposure at the proposed locations on the project where noise-sensitivity was

identified is predicted to be within the clearly acceptable and normally acceptable ranges. After consideration of the noise attenuation which will be provided by the envelopes of the various project buildings, interior noise levels would similarly be satisfactory. *As a result,* ***this impact is considered to be less-than-significant.***

Impact 11: Outdoor Event Center Noise within Proposed Motel Use

Figures 5 and 6 indicate that the noise exposure at the exterior facades of the proposed motel (receptor R-10) would be approximately 60-65 dBA L_{eq} and 65-70 dBA L_{max} during periods when concerts are held at the outdoor event center. At interior positions within the motel, sound generated during concerts is predicted to be approximately 30 dBA lower than exterior levels. Resulting interior noise levels within the motel during concert events would be approximately 30-35 dBA L_{eq} and 35-40 dBA L_{max}. Because concert events would be limited to daytime hours, and because the motel building envelope would reduce sound generated during concert events to acceptable levels, no adverse impacts are identified within the motel use during concert events. At the motel pool area, sound levels generated during concert events would be audible but would not be expected to be objectionable to persons utilizing the pool. *As a result,* ***this impact is considered to be less-than-significant.***

Cumulative Impacts

Impact 12: Cumulative Impacts

The project site is substantially removed from all but one nearby sensitive receptor (R-9), and the project-related increase in cumulative traffic noise exposure is predicted to be satisfactory relative to the FICON significance criteria shown in Table 4. In addition, cumulative noise exposure from combined project noise sources is predicted to be satisfactory relative to the County General Plan noise standards. Finally, cumulative noise impacts from other projects within San Benito County would be highly localized to the area of that particular project. *As a result,* ***this impact is considered to be less-than-significant.***

Appendix A
Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

IIC Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.

L_{dn} Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

L_{eq} Equivalent or energy-averaged sound level.

L_{max} The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

STC Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.

Legend

A Long-term noise measurement location facing south towards development area

B Long-term noise measurement location facing east towards U.S. 101

Betabel Commercial Development

San Benito County, California

Photographs of Long-term Noise Survey Location

Appendix B

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Appendix C-1
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Thursday, May 12, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM				
1:00 AM				
2:00 AM				
3:00 AM				
4:00 AM				
5:00 AM				
6:00 AM				
7:00 AM				
8:00 AM				
9:00 AM				
10:00 AM				
11:00 AM	68	77	67	63
12:00 PM	67	80	66	60
1:00 PM	67	81	65	60
2:00 PM	67	77	66	61
3:00 PM	67	82	65	60
4:00 PM	67	82	66	62
5:00 PM	68	77	67	63
6:00 PM	67	80	67	61
7:00 PM	67	81	66	60
8:00 PM	67	81	66	58
9:00 PM	66	86	65	59
10:00 PM	66	90	62	54
11:00 PM	63	76	59	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	68	66	67	66	63	65
Lmax (Maximum)	86	77	80	90	76	83
L50 (Median)	67	65	66	62	59	61
L90 (Background)	63	58	61	54	50	52

Computed DNL, dB	71
% Daytime Energy	75%
% Nighttime Energy	25%

GPS Coordinates	36°53'59.23"N
	121°33'25.45"W

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Appendix C-2
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Friday, May 13, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	62	77	57	47
1:00 AM	61	73	56	47
2:00 AM	61	74	56	48
3:00 AM	61	78	58	52
4:00 AM	65	74	63	58
5:00 AM	68	77	67	63
6:00 AM	69	79	68	64
7:00 AM	69	80	68	63
8:00 AM	69	82	68	63
9:00 AM	68	77	67	63
10:00 AM	69	82	69	64
11:00 AM	70	85	69	65
12:00 PM	69	77	68	63
1:00 PM	66	80	65	60
2:00 PM	66	81	65	61
3:00 PM	67	80	66	62
4:00 PM	68	89	68	64
5:00 PM	69	92	67	63
6:00 PM	68	82	68	63
7:00 PM	68	82	67	62
8:00 PM	68	89	66	60
9:00 PM	68	92	65	58
10:00 PM	66	84	64	56
11:00 PM	64	84	61	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	70	66	68	69	61	65
Lmax (Maximum)	92	77	83	84	73	78
L50 (Median)	69	65	67	68	56	61
L90 (Background)	65	58	62	64	47	54

Computed DNL, dB	72
% Daytime Energy	77%
% Nighttime Energy	23%

GPS Coordinates	36°53'59.23"N
	121°33'25.45"W

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Appendix C-3
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Saturday, May 14, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	62	81	57	45
1:00 AM	61	79	56	45
2:00 AM	61	80	56	48
3:00 AM	61	81	56	49
4:00 AM	62	75	59	51
5:00 AM	65	76	63	56
6:00 AM	67	80	65	60
7:00 AM	68	86	67	61
8:00 AM	69	80	68	62
9:00 AM	70	86	68	64
10:00 AM	69	80	68	64
11:00 AM	68	83	68	65
12:00 PM	67	81	66	62
1:00 PM	66	83	64	60
2:00 PM	66	77	65	61
3:00 PM	66	84	64	60
4:00 PM	66	81	65	60
5:00 PM	67	93	65	60
6:00 PM	67	85	66	60
7:00 PM	68	93	66	61
8:00 PM	67	79	66	61
9:00 PM	66	82	65	59
10:00 PM	65	79	64	57
11:00 PM	65	82	62	54

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	70	66	67	67	61	64
Lmax (Maximum)	93	77	83	82	75	79
L50 (Median)	68	64	66	65	56	60
L90 (Background)	65	59	61	60	45	52

Computed DNL, dB	71
% Daytime Energy	80%
% Nighttime Energy	20%

GPS Coordinates	36°53'59.23"N
	121°33'25.45"W

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Appendix C-4
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Sunday, May 15, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	63	77	60	48
1:00 AM	61	82	56	43
2:00 AM	61	76	55	42
3:00 AM	59	74	51	39
4:00 AM	58	78	53	41
5:00 AM	61	77	57	48
6:00 AM	63	74	60	52
7:00 AM	65	76	63	55
8:00 AM	65	75	63	56
9:00 AM	66	79	64	59
10:00 AM	66	82	64	59
11:00 AM	67	85	66	61
12:00 PM	67	93	65	60
1:00 PM	66	79	66	61
2:00 PM	66	77	65	61
3:00 PM	67	86	66	61
4:00 PM	66	81	65	60
5:00 PM	66	83	65	59
6:00 PM	66	78	65	60
7:00 PM	67	82	66	60
8:00 PM	66	81	65	59
9:00 PM	65	76	64	58
10:00 PM	65	87	62	54
11:00 PM	63	78	60	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	67	65	66	65	58	62
Lmax (Maximum)	93	75	81	87	74	78
L50 (Median)	66	63	65	62	51	57
L90 (Background)	61	55	59	54	39	46

Computed DNL, dB	69
% Daytime Energy	82%
% Nighttime Energy	18%

GPS Coordinates	36°53'59.23"N
	121°33'25.45"W

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Appendix C-5
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Monday, May 16, 2022

Hour	Leq	Lmax	L50	L90
12:00 AM	62	77	59	47
1:00 AM	60	75	54	41
2:00 AM	60	74	54	42
3:00 AM	61	75	57	46
4:00 AM	64	75	62	55
5:00 AM	67	79	66	61
6:00 AM	69	87	68	63
7:00 AM	68	79	67	62
8:00 AM	68	77	66	60
9:00 AM	68	79	66	62
10:00 AM	67	79	66	60
11:00 AM	67	76	65	59
12:00 PM	67	77	65	60
1:00 PM	67	83	65	60
2:00 PM				
3:00 PM				
4:00 PM				
5:00 PM				
6:00 PM				
7:00 PM				
8:00 PM				
9:00 PM				
10:00 PM				
11:00 PM				

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	68	67	67	69	60	65
Lmax (Maximum)	83	76	78	87	74	77
L50 (Median)	67	65	66	68	54	60
L90 (Background)	62	59	60	63	41	51

Computed DNL, dB	72
% Daytime Energy	74%
% Nighttime Energy	26%

GPS Coordinates	36°53'59.23"N
	121°33'25.45"W

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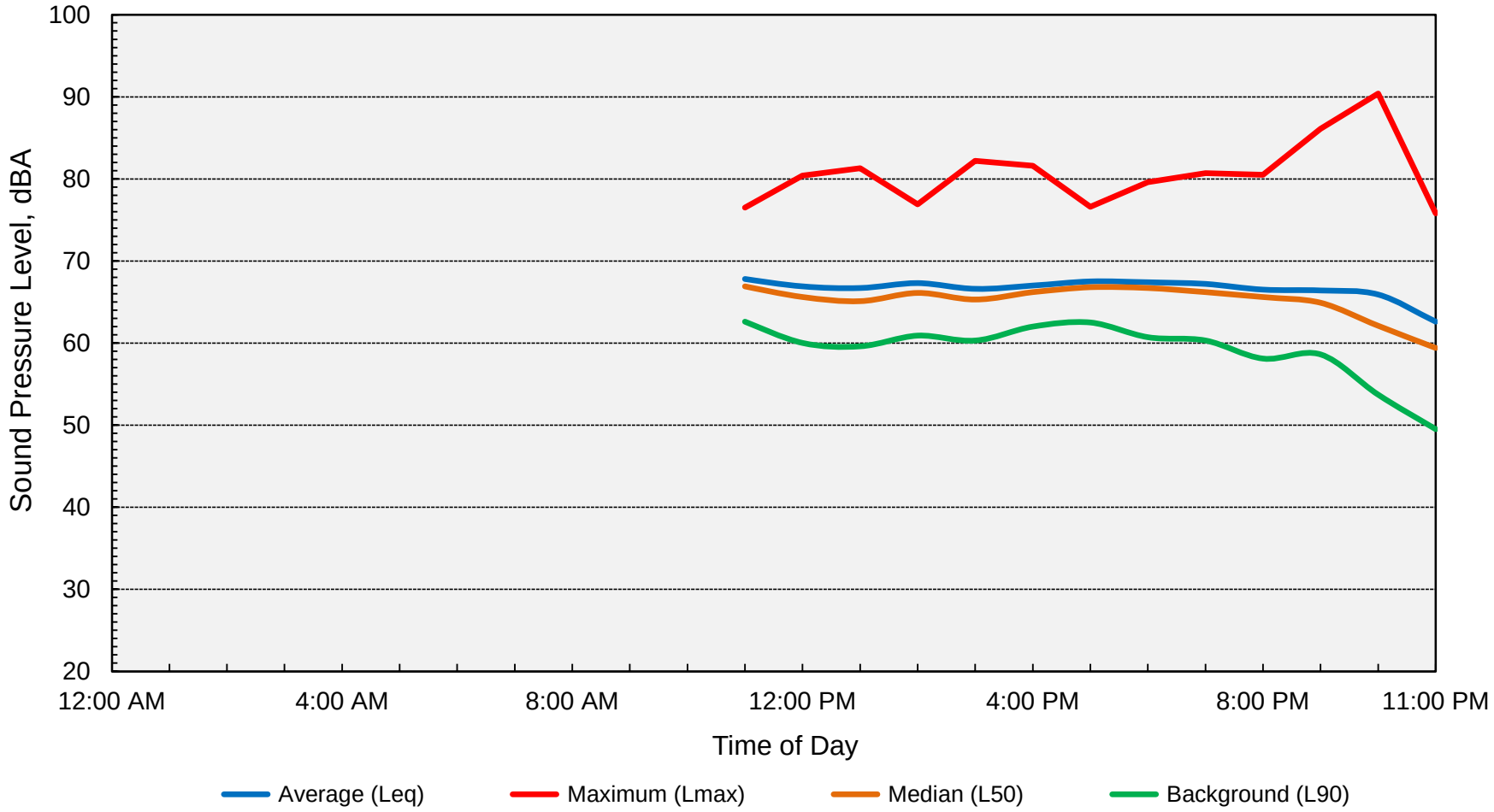
Appendix D-1
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Thursday, May 12, 2022



Computed DNL = 71 dB

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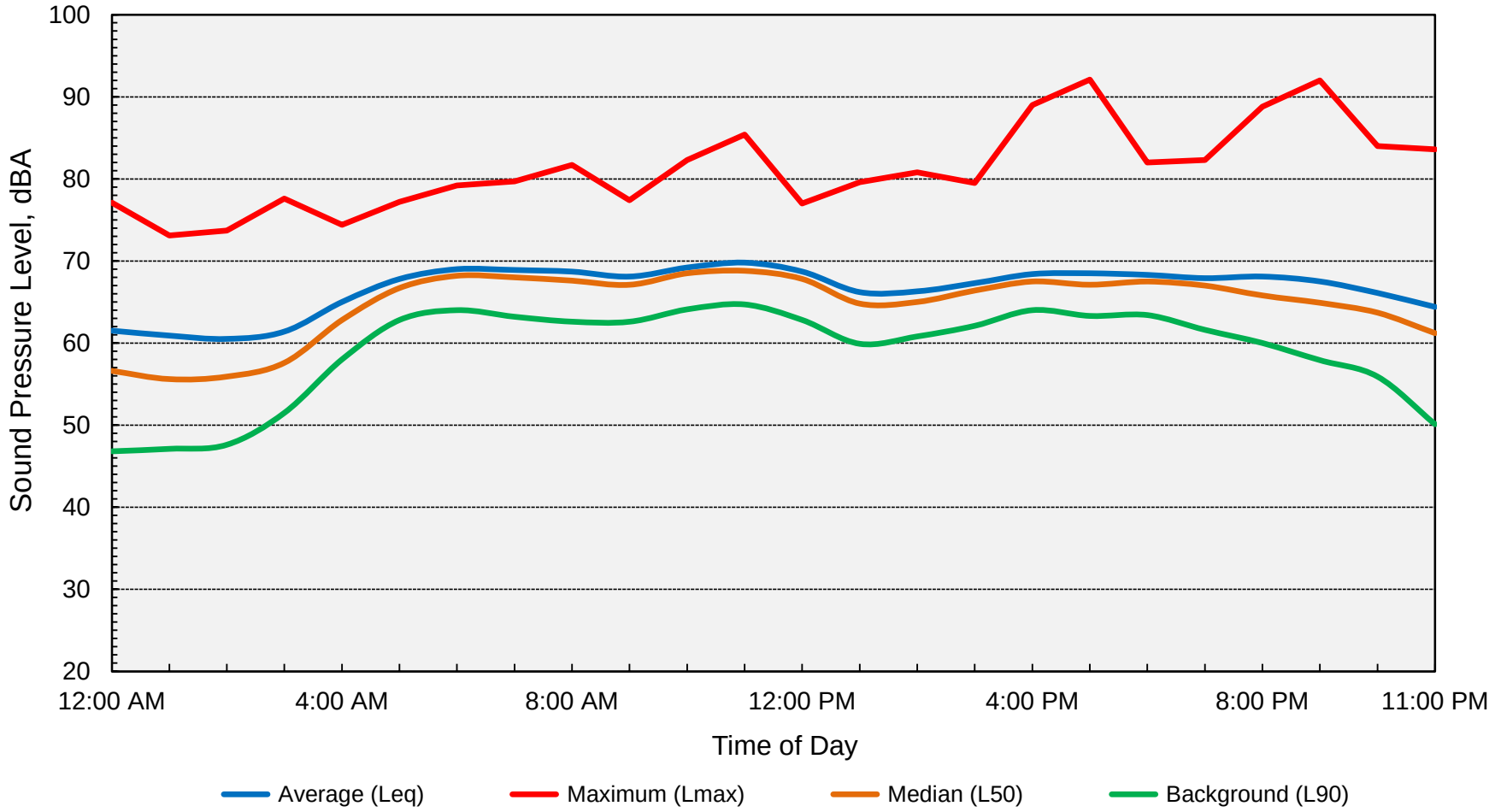
Appendix D-2
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Friday, May 13, 2022



Computed DNL = 72 dB

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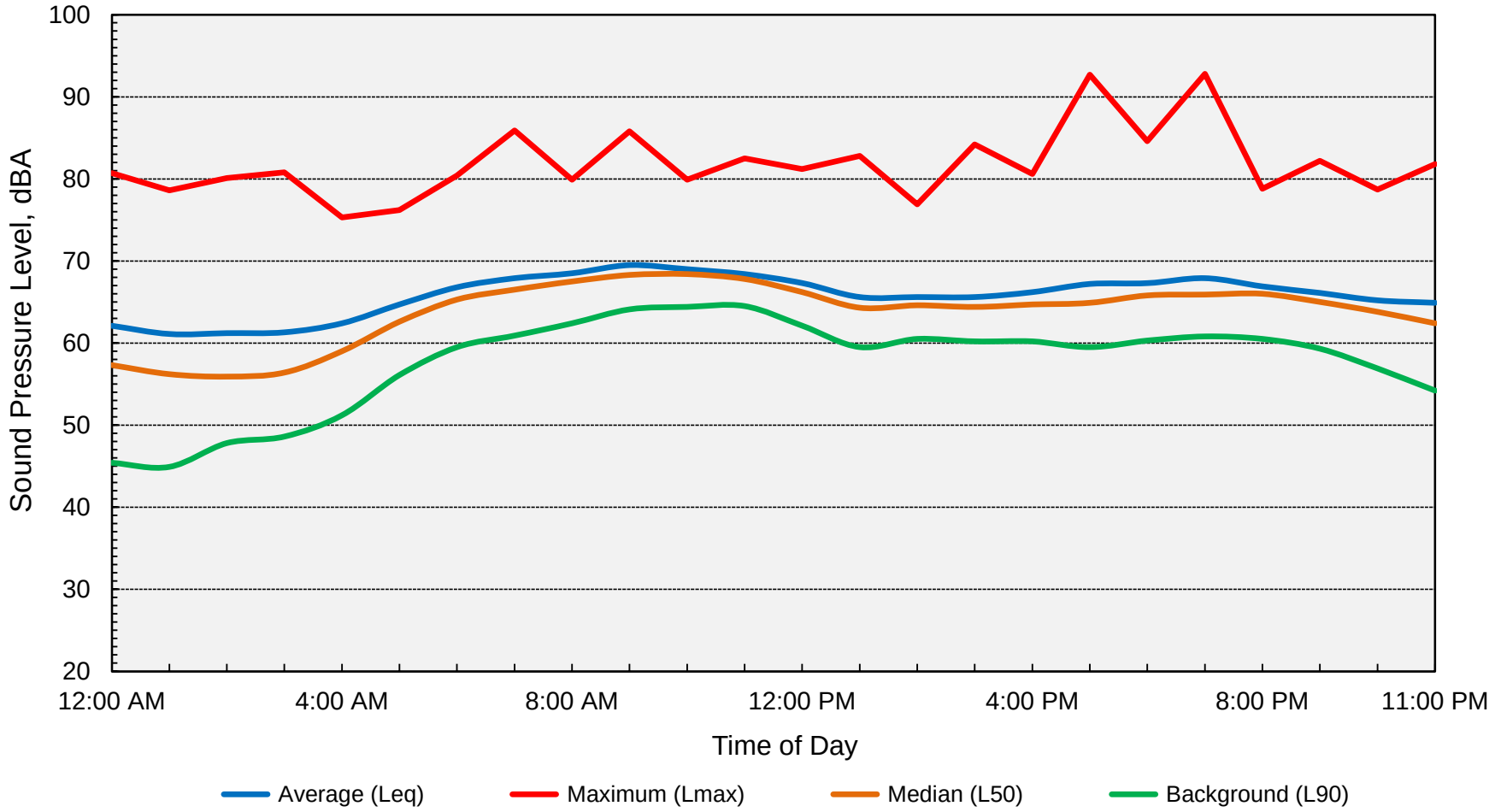
Appendix D-3
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Saturday, May 14, 2022



Computed DNL = 71 dB

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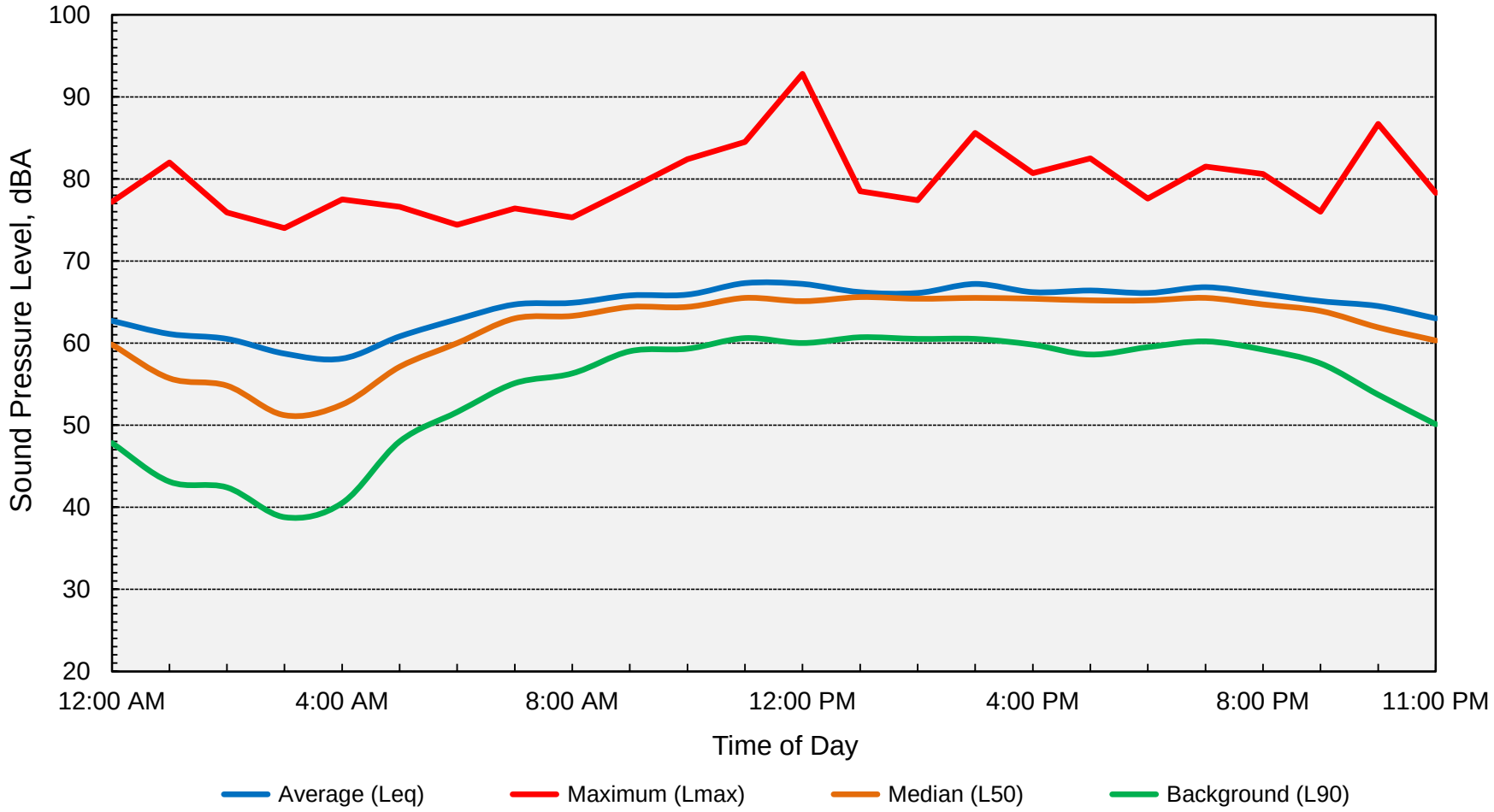
Appendix D-4
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Sunday, May 15, 2022



Computed DNL = 69 dB

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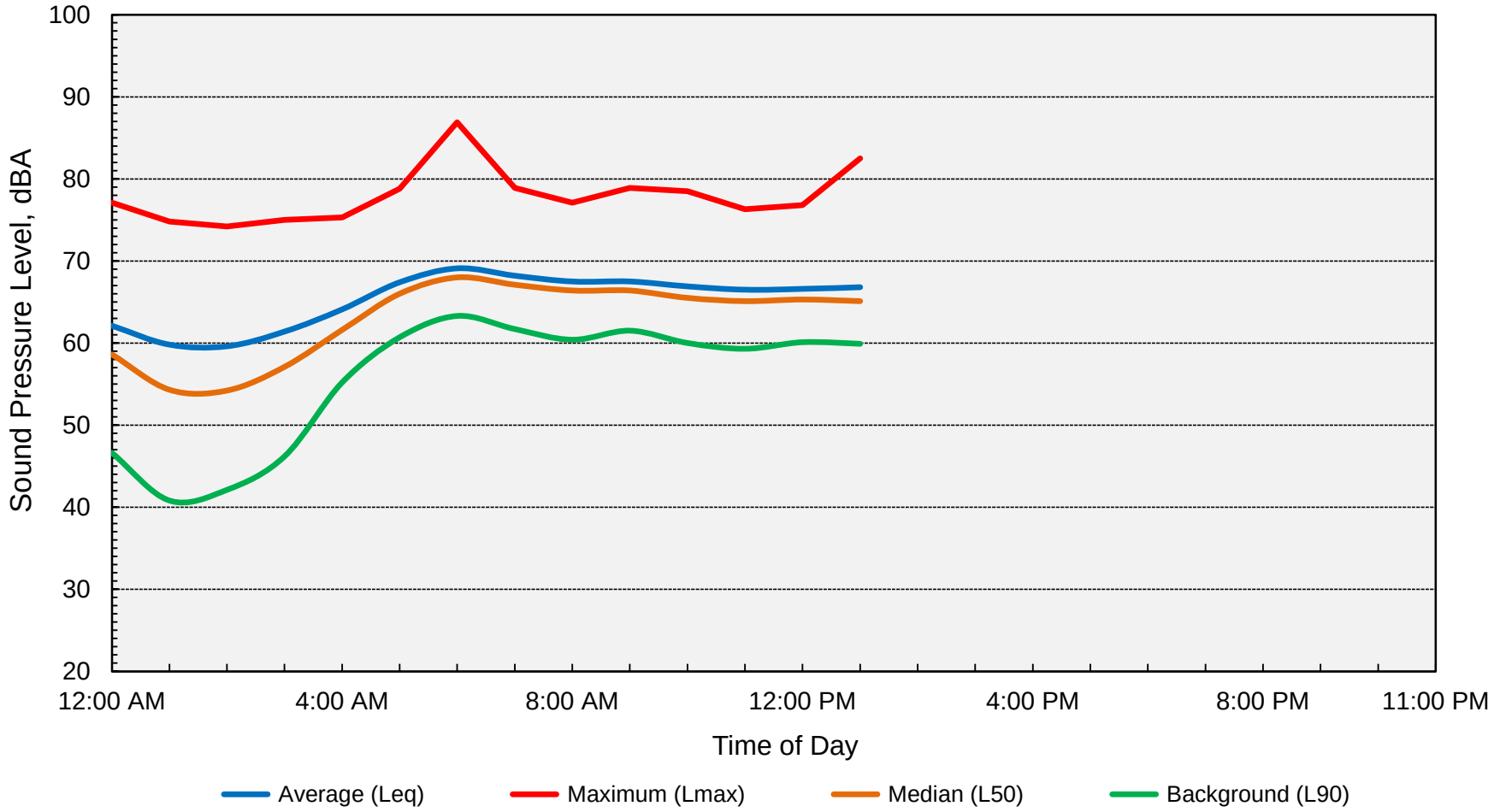
Appendix D-5
Long-Term Ambient Noise Monitoring Results - Site LT-1
Betabel Commercial Development - San Benito County, California
Monday, May 16, 2022



Computed DNL = 72 dB

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Appendix E-1
FHWA Highway Traffic Noise Prediction Model Inputs
Existing Conditions: Receptor R-1
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	305	80	20	2	1	35	6000
Weekday	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	415	80	20	2	1	25	6000
Weekday	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	315	80	20	2	1	25	6000
Weekday	Lomarias O/C	HWY 101 N/B Ramps to Y Road	155	80	20	2	1	25	6000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	6000
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	100
Weekday	HWY 101 S/B Ramp	North of Lomerias O/C	220	80	20	2	1	55	5000
Weekday	HWY 101 S/B Ramp	South of Lomerias O/C	280	80	20	2	1	55	5000
Weekday	HWY 101 N/B Ramp	North of Lomerias O/C	260	80	20	2	1	55	6000
Weekday	HWY 101 N/B Ramp	South of Lomerias O/C	205	80	20	2	1	55	6000
Weekday	Highway 101	Lomarias O/C to Hwy 129	63,700	80	20	8	5	65	1000
Weekend	Betabel Rd	North of Lomerias O/C	80	80	20	2	1	35	6000
Weekend	Betabel Rd	South of Lomerias O/C	370	80	20	2	1	35	6000
Weekend	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	410	80	20	2	1	25	6000
Weekend	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	220	80	20	2	1	25	6000
Weekend	Lomarias O/C	HWY 101 N/B Ramps to Y Road	130	80	20	2	1	25	6000
Weekend	Y Road	North of Lomerias O/C	5	80	20	2	1	35	6000
Weekend	Y Road	South of Lomerias O/C	130	80	20	2	1	35	100
Weekend	HWY 101 S/B Ramp	North of Lomerias O/C	250	80	20	2	1	55	5000
Weekend	HWY 101 S/B Ramp	South of Lomerias O/C	140	80	20	2	1	55	5000
Weekend	HWY 101 N/B Ramp	North of Lomerias O/C	230	80	20	2	1	55	6000
Weekend	HWY 101 N/B Ramp	South of Lomerias O/C	220	80	20	2	1	55	6000
Weekend	Highway 101	Lomarias O/C to Hwy 129	63,700	80	20	8	5	65	1000

Appendix E-2
FHWA Highway Traffic Noise Prediction Model Inputs
Existing Conditions: Receptor R-9
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	305	80	20	2	1	35	100
Weekday	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	415	80	20	2	1	25	500
Weekday	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	315	80	20	2	1	25	600
Weekday	Lomarias O/C	HWY 101 N/B Ramps to Y Road	155	80	20	2	1	25	1000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	1200
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	500
Weekday	HWY 101 S/B Ramp	North of Lomerias O/C	220	80	20	2	1	55	700
Weekday	HWY 101 S/B Ramp	South of Lomerias O/C	280	80	20	2	1	55	150
Weekday	HWY 101 N/B Ramp	North of Lomerias O/C	260	80	20	2	1	55	1000
Weekday	HWY 101 N/B Ramp	South of Lomerias O/C	205	80	20	2	1	55	370
Weekday	Highway 101	Lomarias O/C to Hwy 129	63,700	80	20	8	5	65	270
Weekend	Betabel Rd	North of Lomerias O/C	80	80	20	2	1	35	600
Weekend	Betabel Rd	South of Lomerias O/C	370	80	20	2	1	35	100
Weekend	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	410	80	20	2	1	25	500
Weekend	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	220	80	20	2	1	25	600
Weekend	Lomarias O/C	HWY 101 N/B Ramps to Y Road	130	80	20	2	1	25	1000
Weekend	Y Road	North of Lomerias O/C	5	80	20	2	1	35	1200
Weekend	Y Road	South of Lomerias O/C	130	80	20	2	1	35	500
Weekend	HWY 101 S/B Ramp	North of Lomerias O/C	250	80	20	2	1	55	700
Weekend	HWY 101 S/B Ramp	South of Lomerias O/C	140	80	20	2	1	55	150
Weekend	HWY 101 N/B Ramp	North of Lomerias O/C	230	80	20	2	1	55	1000
Weekend	HWY 101 N/B Ramp	South of Lomerias O/C	220	80	20	2	1	55	370
Weekend	Highway 101	Lomarias O/C to Hwy 129	63,700	80	20	8	5	65	270

Appendix E-3
FHWA Highway Traffic Noise Prediction Model Inputs
Near Term Plus Project Conditions: Receptor R-1
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	6,355	80	20	2	1	35	6000
Weekday	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	6,465	80	20	2	1	25	6000
Weekday	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	3,375	80	20	2	1	25	6000
Weekday	Lomarias O/C	HWY 101 N/B Ramps to Y Road	155	80	20	2	1	25	6000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	6000
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	100
Weekday	HWY 101 S/B Ramp	North of Lomerias O/C	1,905	80	20	2	1	55	5000
Weekday	HWY 101 S/B Ramp	South of Lomerias O/C	1,655	80	20	2	1	55	5000
Weekday	HWY 101 N/B Ramp	North of Lomerias O/C	1,660	80	20	2	1	55	6000
Weekday	HWY 101 N/B Ramp	South of Lomerias O/C	1,885	80	20	2	1	55	6000
Weekday	Highway 101	Lomarias O/C to Hwy 129	70,055	80	20	8	5	65	1000
Weekend	Betabel Rd	North of Lomerias O/C	90	80	20	2	1	35	6000
Weekend	Betabel Rd	South of Lomerias O/C	7,230	80	20	2	1	35	6000
Weekend	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	7,280	80	20	2	1	25	6000
Weekend	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	3,660	80	20	2	1	25	6000
Weekend	Lomarias O/C	HWY 101 N/B Ramps to Y Road	150	80	20	2	1	25	6000
Weekend	Y Road	North of Lomerias O/C	20	80	20	2	1	35	6000
Weekend	Y Road	South of Lomerias O/C	130	80	20	2	1	35	100
Weekend	HWY 101 S/B Ramp	North of Lomerias O/C	2,250	80	20	2	1	55	5000
Weekend	HWY 101 S/B Ramp	South of Lomerias O/C	1,590	80	20	2	1	55	5000
Weekend	HWY 101 N/B Ramp	North of Lomerias O/C	1,660	80	20	2	1	55	6000
Weekend	HWY 101 N/B Ramp	South of Lomerias O/C	3,660	80	20	2	1	55	6000
Weekend	Highway 101	Lomarias O/C to Hwy 129	70,930	80	20	8	5	65	1000

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-4
FHWA Highway Traffic Noise Prediction Model Inputs
Near Term Plus Project Conditions: Receptor R-9
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	6,355	80	20	2	1	35	100
Weekday	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	6,465	80	20	2	1	25	500
Weekday	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	3,375	80	20	2	1	25	600
Weekday	Lomarias O/C	HWY 101 N/B Ramps to Y Road	155	80	20	2	1	25	1000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	1200
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	500
Weekday	HWY 101 S/B Ramp	North of Lomerias O/C	1,905	80	20	2	1	55	700
Weekday	HWY 101 S/B Ramp	South of Lomerias O/C	1,655	80	20	2	1	55	150
Weekday	HWY 101 N/B Ramp	North of Lomerias O/C	1,660	80	20	2	1	55	1000
Weekday	HWY 101 N/B Ramp	South of Lomerias O/C	1,885	80	20	2	1	55	370
Weekday	Highway 101	Lomarias O/C to Hwy 129	70,055	80	20	8	5	65	270
Weekend	Betabel Rd	North of Lomerias O/C	90	80	20	2	1	35	600
Weekend	Betabel Rd	South of Lomerias O/C	7,230	80	20	2	1	35	100
Weekend	Lomarias O/C	Betabel Rd to HWY 101 S/B Ramps	7,280	80	20	2	1	25	500
Weekend	Lomarias O/C	HWY 101 S/B Ramps to HWY 101 N/B Ramps	3,660	80	20	2	1	25	600
Weekend	Lomarias O/C	HWY 101 N/B Ramps to Y Road	150	80	20	2	1	25	1000
Weekend	Y Road	North of Lomerias O/C	20	80	20	2	1	35	1200
Weekend	Y Road	South of Lomerias O/C	130	80	20	2	1	35	500
Weekend	HWY 101 S/B Ramp	North of Lomerias O/C	2,250	80	20	2	1	55	700
Weekend	HWY 101 S/B Ramp	South of Lomerias O/C	1,590	80	20	2	1	55	150
Weekend	HWY 101 N/B Ramp	North of Lomerias O/C	1,660	80	20	2	1	55	1000
Weekend	HWY 101 N/B Ramp	South of Lomerias O/C	3,660	80	20	2	1	55	370
Weekend	Highway 101	Lomarias O/C to Hwy 129	70,930	80	20	8	5	65	270

Appendix E-5
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 No Project Conditions: Receptor R-1
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	330	80	20	2	1	35	6000
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	440	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	435	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	155	80	20	2	1	25	6000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	6000
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	100
Weekday	US 101 S/B Ramp	North of Lomerias O/C	330	80	20	2	1	55	5000
Weekday	US 101 S/B Ramp	South of Lomerias O/C	280	80	20	2	1	55	5000
Weekday	US 101 N/B Ramp	North of Lomerias O/C	360	80	20	2	1	55	6000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	305	80	20	2	1	55	6000
Weekday	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	1000
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	6000
Weekend	Betabel Rd	South of Lomerias O/C	370	80	20	2	1	35	6000
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	460	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	280	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	200	80	20	2	1	25	6000
Weekend	Y Road	North of Lomerias O/C	80	80	20	2	1	35	6000
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	100
Weekend	US 101 S/B Ramp	North of Lomerias O/C	260	80	20	2	1	55	5000
Weekend	US 101 S/B Ramp	South of Lomerias O/C	240	80	20	2	1	55	5000
Weekend	US 101 N/B Ramp	North of Lomerias O/C	230	80	20	2	1	55	6000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	270	80	20	2	1	55	6000
Weekend	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	1000

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-6
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 No Project Conditions: Receptor R-9
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	330	80	20	2	1	35	100
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	440	80	20	2	1	25	500
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	435	80	20	2	1	25	600
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	155	80	20	2	1	25	1000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	1200
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	500
Weekday	US 101 S/B Ramp	North of Lomerias O/C	330	80	20	2	1	55	700
Weekday	US 101 S/B Ramp	South of Lomerias O/C	280	80	20	2	1	55	150
Weekday	US 101 N/B Ramp	North of Lomerias O/C	360	80	20	2	1	55	1000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	305	80	20	2	1	55	370
Weekday	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	270
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	600
Weekend	Betabel Rd	South of Lomerias O/C	370	80	20	2	1	35	100
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	460	80	20	2	1	25	500
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	280	80	20	2	1	25	600
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	200	80	20	2	1	25	1000
Weekend	Y Road	North of Lomerias O/C	80	80	20	2	1	35	1200
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	500
Weekend	US 101 S/B Ramp	North of Lomerias O/C	260	80	20	2	1	55	700
Weekend	US 101 S/B Ramp	South of Lomerias O/C	240	80	20	2	1	55	150
Weekend	US 101 N/B Ramp	North of Lomerias O/C	230	80	20	2	1	55	1000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	270	80	20	2	1	55	370
Weekend	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	270

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-7
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 No Project + SV Conditions: Receptor R-1
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	330	80	20	2	1	35	6000
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	440	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	4,580	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	8,160	80	20	2	1	25	6000
Weekday	Y Road	North of Lomerias O/C	8,080	80	20	2	1	35	6000
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	100
Weekday	US 101 S/B Ramp	North of Lomerias O/C	3,380	80	20	2	1	55	5000
Weekday	US 101 S/B Ramp	South of Lomerias O/C	1,375	80	20	2	1	55	5000
Weekday	US 101 N/B Ramp	North of Lomerias O/C	2,950	80	20	2	1	55	6000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	1,585	80	20	2	1	55	6000
Weekday	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	1000
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	6000
Weekend	Betabel Rd	South of Lomerias O/C	370	80	20	2	1	35	6000
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	460	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	430	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	580	80	20	2	1	25	6000
Weekend	Y Road	North of Lomerias O/C	460	80	20	2	1	35	6000
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	100
Weekend	US 101 S/B Ramp	North of Lomerias O/C	320	80	20	2	1	55	5000
Weekend	US 101 S/B Ramp	South of Lomerias O/C	330	80	20	2	1	55	5000
Weekend	US 101 N/B Ramp	North of Lomerias O/C	440	80	20	2	1	55	6000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	420	80	20	2	1	55	6000
Weekend	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	1000

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-8
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 No Project + SV Conditions: Receptor R-9
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	330	80	20	2	1	35	100
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	440	80	20	2	1	25	500
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	4,580	80	20	2	1	25	600
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	8,160	80	20	2	1	25	1000
Weekday	Y Road	North of Lomerias O/C	8,080	80	20	2	1	35	1200
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	500
Weekday	US 101 S/B Ramp	North of Lomerias O/C	3,380	80	20	2	1	55	700
Weekday	US 101 S/B Ramp	South of Lomerias O/C	1,375	80	20	2	1	55	150
Weekday	US 101 N/B Ramp	North of Lomerias O/C	2,950	80	20	2	1	55	1000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	1,585	80	20	2	1	55	370
Weekday	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	270
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	600
Weekend	Betabel Rd	South of Lomerias O/C	370	80	20	2	1	35	100
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	460	80	20	2	1	25	500
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	430	80	20	2	1	25	600
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	580	80	20	2	1	25	1000
Weekend	Y Road	North of Lomerias O/C	460	80	20	2	1	35	1200
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	500
Weekend	US 101 S/B Ramp	North of Lomerias O/C	320	80	20	2	1	55	700
Weekend	US 101 S/B Ramp	South of Lomerias O/C	330	80	20	2	1	55	150
Weekend	US 101 N/B Ramp	North of Lomerias O/C	440	80	20	2	1	55	1000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	420	80	20	2	1	55	370
Weekend	Highway 101	Lomarias O/C to Hwy 129	89,180	80	20	8	5	65	270

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-9
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 + Project - SV Conditions: Receptor R-1
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	6,375	80	20	2	1	35	6000
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	6,485	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	3,465	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	155	80	20	2	1	25	6000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	6000
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	100
Weekday	US 101 S/B Ramp	North of Lomerias O/C	1,985	80	20	2	1	55	5000
Weekday	US 101 S/B Ramp	South of Lomerias O/C	1,655	80	20	2	1	55	5000
Weekday	US 101 N/B Ramp	North of Lomerias O/C	1,735	80	20	2	1	55	6000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	1,960	80	20	2	1	55	6000
Weekday	Highway 101	Lomarias O/C to Hwy 129	95,555	80	20	8	5	65	1000
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	6000
Weekend	Betabel Rd	South of Lomerias O/C	7,230	80	20	2	1	35	6000
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	7,320	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	3,710	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	200	80	20	2	1	25	6000
Weekend	Y Road	North of Lomerias O/C	80	80	20	2	1	35	6000
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	100
Weekend	US 101 S/B Ramp	North of Lomerias O/C	2,260	80	20	2	1	55	5000
Weekend	US 101 S/B Ramp	South of Lomerias O/C	1,670	80	20	2	1	55	5000
Weekend	US 101 N/B Ramp	North of Lomerias O/C	1,660	80	20	2	1	55	6000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	3,700	80	20	2	1	55	6000
Weekend	Highway 101	Lomarias O/C to Hwy 129	96,410	80	20	8	5	65	1000

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-10
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 + Project - SV Conditions: Receptor R-9
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	6,375	80	20	2	1	35	100
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	6,485	80	20	2	1	25	500
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	3,465	80	20	2	1	25	600
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	155	80	20	2	1	25	1000
Weekday	Y Road	North of Lomerias O/C	75	80	20	2	1	35	1200
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	500
Weekday	US 101 S/B Ramp	North of Lomerias O/C	1,985	80	20	2	1	55	700
Weekday	US 101 S/B Ramp	South of Lomerias O/C	1,655	80	20	2	1	55	150
Weekday	US 101 N/B Ramp	North of Lomerias O/C	1,735	80	20	2	1	55	1000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	1,960	80	20	2	1	55	370
Weekday	Highway 101	Lomarias O/C to Hwy 129	95,555	80	20	8	5	65	270
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	600
Weekend	Betabel Rd	South of Lomerias O/C	7,230	80	20	2	1	35	100
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	7,320	80	20	2	1	25	500
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	3,710	80	20	2	1	25	600
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	200	80	20	2	1	25	1000
Weekend	Y Road	North of Lomerias O/C	80	80	20	2	1	35	1200
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	500
Weekend	US 101 S/B Ramp	North of Lomerias O/C	2,260	80	20	2	1	55	700
Weekend	US 101 S/B Ramp	South of Lomerias O/C	1,670	80	20	2	1	55	150
Weekend	US 101 N/B Ramp	North of Lomerias O/C	1,660	80	20	2	1	55	1000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	3,700	80	20	2	1	55	370
Weekend	Highway 101	Lomarias O/C to Hwy 129	96,410	80	20	8	5	65	270

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-11
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 + Project + SV Conditions: Receptor R-1
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	6,375	80	20	2	1	35	6000
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	6,485	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	7,610	80	20	2	1	25	6000
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	8,160	80	20	2	1	25	6000
Weekday	Y Road	North of Lomerias O/C	8,080	80	20	2	1	35	6000
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	100
Weekday	US 101 S/B Ramp	North of Lomerias O/C	5,035	80	20	2	1	55	5000
Weekday	US 101 S/B Ramp	South of Lomerias O/C	2,750	80	20	2	1	55	5000
Weekday	US 101 N/B Ramp	North of Lomerias O/C	4,325	80	20	2	1	55	6000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	3,240	80	20	2	1	55	6000
Weekday	Highway 101	Lomarias O/C to Hwy 129	95,555	80	20	8	5	65	1000
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	6000
Weekend	Betabel Rd	South of Lomerias O/C	7,230	80	20	2	1	35	6000
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	7,320	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	3,860	80	20	2	1	25	6000
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	580	80	20	2	1	25	6000
Weekend	Y Road	North of Lomerias O/C	460	80	20	2	1	35	6000
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	100
Weekend	US 101 S/B Ramp	North of Lomerias O/C	2,320	80	20	2	1	55	5000
Weekend	US 101 S/B Ramp	South of Lomerias O/C	1,760	80	20	2	1	55	5000
Weekend	US 101 N/B Ramp	North of Lomerias O/C	1,870	80	20	2	1	55	6000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	3,850	80	20	2	1	55	6000
Weekend	Highway 101	Lomarias O/C to Hwy 129	96,410	80	20	8	5	65	1000

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year

Appendix E-12
FHWA Highway Traffic Noise Prediction Model Inputs
Cumulative 2030 + Project + SV Conditions: Receptor R-9
Betabel Commercial Project

Period	Roadway	Description	ADT	Day %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance
Weekday	Betabel Rd	North of Lomerias O/C	110	80	20	2	1	35	100
Weekday	Betabel Rd	South of Lomerias O/C	6,375	80	20	2	1	35	100
Weekday	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	6,485	80	20	2	1	25	500
Weekday	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	7,610	80	20	2	1	25	600
Weekday	Lomarias O/C	US 101 N/B Ramps to Y Road	8,160	80	20	2	1	25	1000
Weekday	Y Road	North of Lomerias O/C	8,080	80	20	2	1	35	1200
Weekday	Y Road	South of Lomerias O/C	90	80	20	2	1	35	500
Weekday	US 101 S/B Ramp	North of Lomerias O/C	5,035	80	20	2	1	55	700
Weekday	US 101 S/B Ramp	South of Lomerias O/C	2,750	80	20	2	1	55	150
Weekday	US 101 N/B Ramp	North of Lomerias O/C	4,325	80	20	2	1	55	1000
Weekday	US 101 N/B Ramp	South of Lomerias O/C	3,240	80	20	2	1	55	370
Weekday	Highway 101	Lomarias O/C to Hwy 129	95,555	80	20	8	5	65	270
Weekend	Betabel Rd	North of Lomerias O/C	130	80	20	2	1	35	600
Weekend	Betabel Rd	South of Lomerias O/C	7,230	80	20	2	1	35	100
Weekend	Lomarias O/C	Betabel Rd to US 101 S/B Ramps	7,320	80	20	2	1	25	500
Weekend	Lomarias O/C	US 101 S/B Ramps to US 101 N/B Ramps	3,860	80	20	2	1	25	600
Weekend	Lomarias O/C	US 101 N/B Ramps to Y Road	580	80	20	2	1	25	1000
Weekend	Y Road	North of Lomerias O/C	460	80	20	2	1	35	1200
Weekend	Y Road	South of Lomerias O/C	140	80	20	2	1	35	500
Weekend	US 101 S/B Ramp	North of Lomerias O/C	2,320	80	20	2	1	55	700
Weekend	US 101 S/B Ramp	South of Lomerias O/C	1,760	80	20	2	1	55	150
Weekend	US 101 N/B Ramp	North of Lomerias O/C	1,870	80	20	2	1	55	1000
Weekend	US 101 N/B Ramp	South of Lomerias O/C	3,850	80	20	2	1	55	370
Weekend	Highway 101	Lomarias O/C to Hwy 129	96,410	80	20	8	5	65	270

SV = Strata Verde Project
Future US 101 ADT Assumes 5% Traffic Growth / Year