APPENDIX O

Environmental Noise Assessment

NOISE IMPACT ASSESMENT

NORTH FORK CASINO DEVELOPMENT
MADERA COUNTY

PREPARED BY

VRPA TECHNOLOGIES, INC.
FRESNO, CALIFORNIA

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VRPA Technologies, Inc.

4630 W. Jennifer, Ste. 105 • Fresno, CA 93722 • (559) 271-1200 • (559) 271-1269 Fax

Proposed North Fork Hotel and Casino Development
NOISE IMPACT ASSESSMENT

INTRODUCTION

This Noise Impact Assessment (NIA) has been prepared for the purpose of identifying potential noise impacts for the proposed alternatives of the North Fork Hotel and Casino development. The proposed Project is located in the County of Madera.

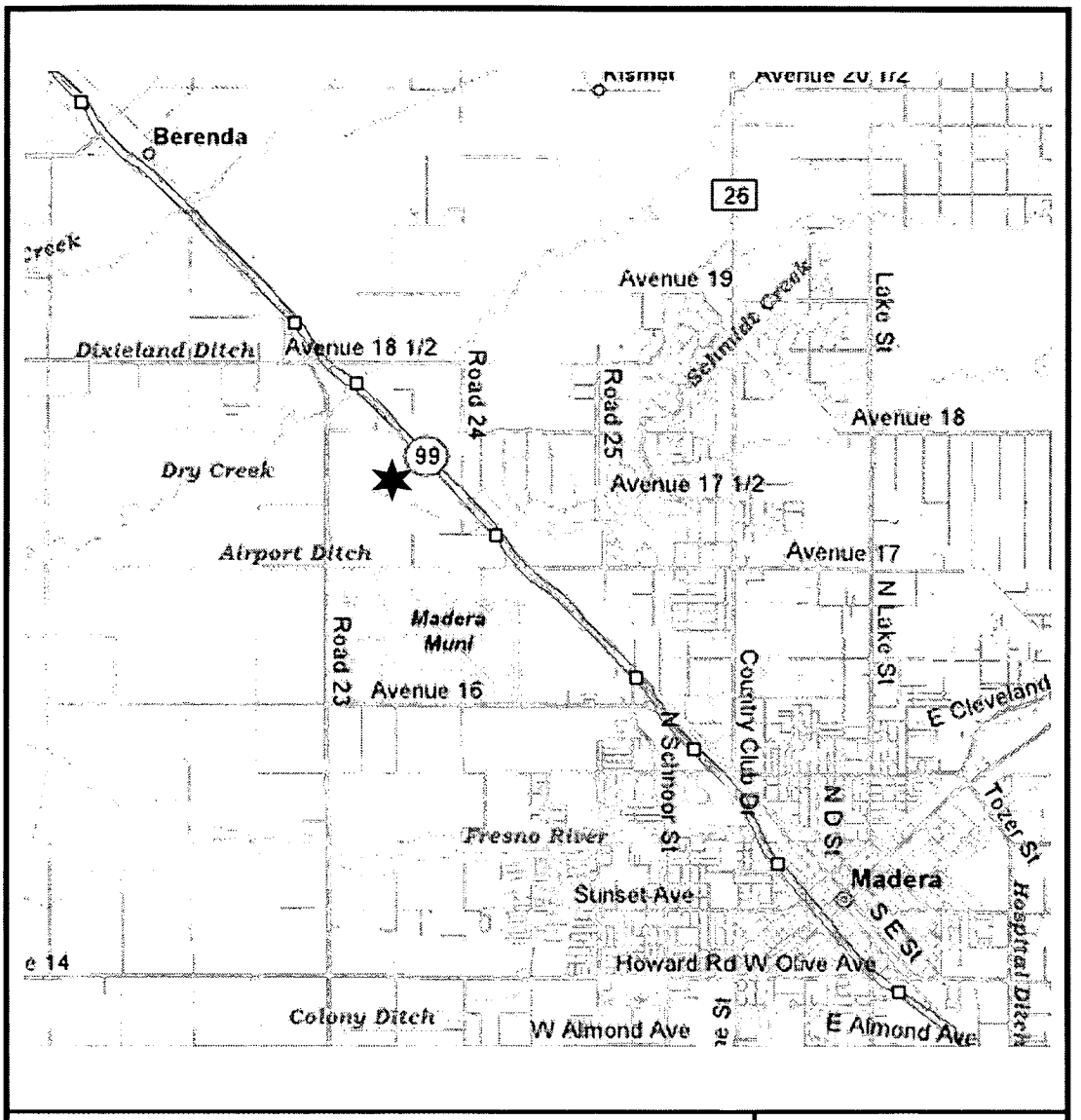
DESCRIPTION OF THE REGION/PROJECT

Figure 1 identifies the location of the Project along with major roadways within the vicinity of the Project site for alternatives A, B, and C. Figure 2 identifies the location of the Project for alternative D. The project site for alternatives A, B, and C is located southwest Madera County, just north of the City of Madera and adjacent to State Route 99 and Golden State Boulevard. Alternative D is a proposed off-site location in Madera County near North Fork, California, approximately 30 miles south of Yosemite National Park and 40 miles north east of Fresno, California. Alternative E represents a No-Action alternative that will also be included in this assessment. For noise impact assessment purposes, the "Project" alternatives are defined as the following:

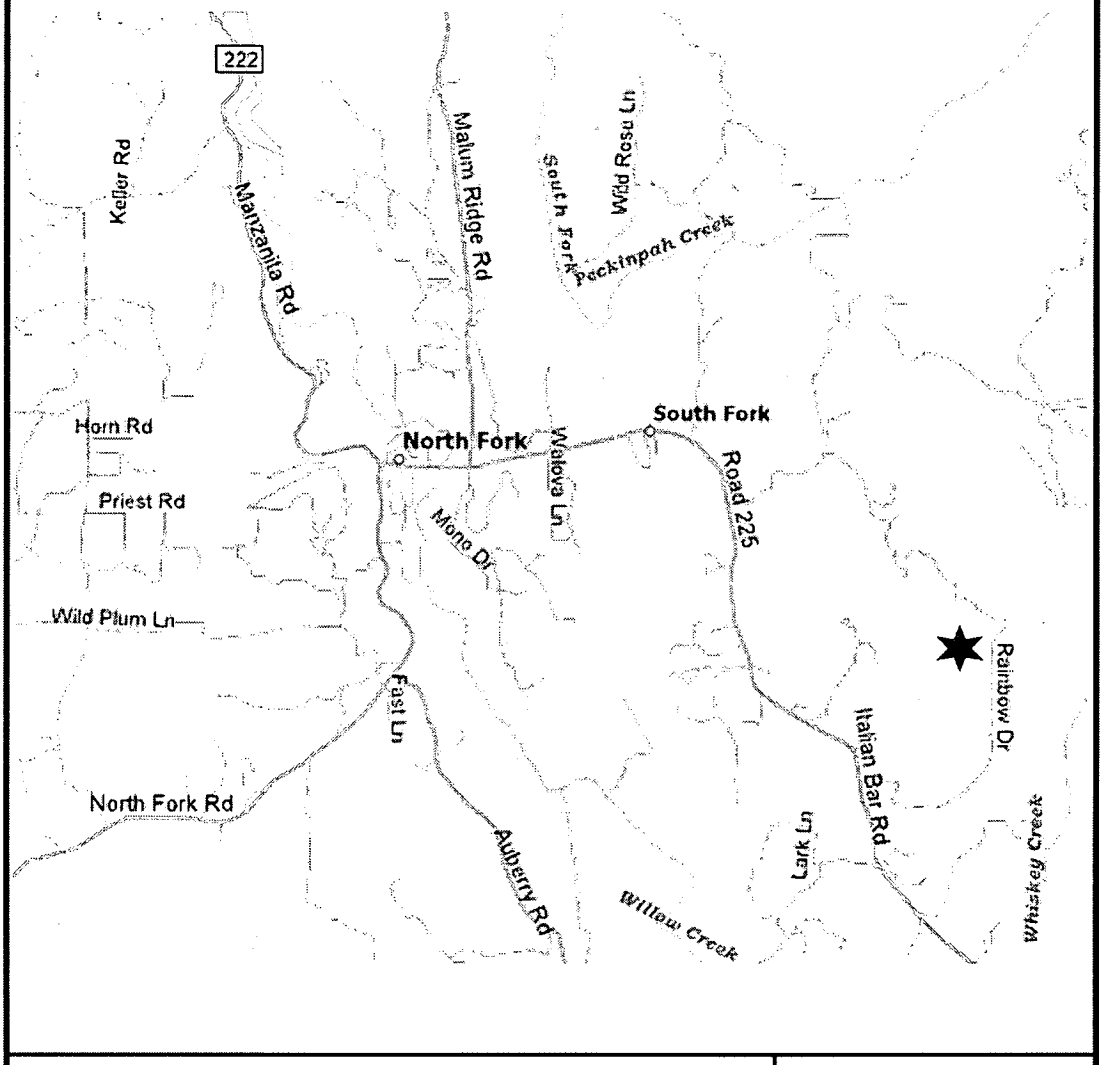
- Alternative A: Preferred Casino and Hotel Development;
- Alternative B: Decreased Intensity Casino and Hotel Development;
- Alternative C: Non-Gaming Development on the Project Site;
- Alternative D: Alternative Off-site Alternative; and
- Alternative E: The No-Action Alternative.

METHODOLOGY

When preparing an NIA, guidelines set by affected agencies must be followed. Acoustical terminology used for this NIA is documented in Appendix A. In analyzing noise levels, the Federal Highway Administration's (FHWA) Highway Traffic Noise Prediction and Federal Interagency Committee On Noise (FICON) methodology must be applied. Safety concerns must also be analyzed to determine the need for appropriate mitigation resulting from increased noise due to increased traffic adjacent to the Project and other evaluations such as the need for noise barriers and other noise abatement improvements. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dBA). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards use A-weighing, as it provides a high degree of correlation with human annoyance and health effects.



Project Location (Alternatives A, B, & C)	Figure 1
Legend Project Site	VRPA Technologies, Inc.



Project Location (Alternative D)

Figure 2

Legend

Project Site

First, existing "baseline" traffic noise levels are established based on previously collected traffic data and using Sound2000 modeling. Sound2000 is the Caltrans version of FHWA's STAMINA 2.0/OPTIMA Traffic Noise Prediction Programs. Once existing levels are established, future levels, based on expected traffic growth, are calculated and compared to both the existing noise level and the maximum allowable noise exposure based on FICON noise criteria. Referencing Table 1 the FICON Significance of Changes in Noise Exposures Criteria identifies an increase in traffic noise levels of 2.0 dB or more would be significant where the ambient level exceeds 65 dB. The rationale for table 1 is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause significant annoyance. Table 2 shows the FHWA Noise Abatement Criteria, which identifies a maximum interior noise level of 52 dB for hotels.

TABLE 1

SIGNIFICANCE OF CHANGES IN CUMULATIVE NOISE EXPOSURE (FICON)	
Ambient Noise Level Without Project L_{dn}	**Increase Required for Significant Impact**
<60 dB	+5 dB or more
60 – 65 dB	+3 dB or more
>65 dB	+2 dB or more

Source: Federal Interagency Committee On Noise (FICON)

TABLE 2

NOISE ABATEMENT CRITERIA (NAC) Hourly A-Weighted Sound Level FHWA	
Land Use Catagory	**Interior Spaces L_{eq} dB**
Schools, Libraries, Churches, Hotels, Hospitals, Nursing Homes	52
Amphitheaters, Auditoriums	52

Source: FHWA

EXISTING TRAFFIC NOISE

Existing traffic noise levels were evaluated using the Sound 2000 Prediction Model. Traffic volumes and speeds of 65 miles per hour along State Route 99 and 50 miles per hour along Golden State Boulevard, were entered into the model to estimate noise levels at the proposed location for Alternatives A, B, and C. For Alternative D, traffic volumes and speeds of 35 miles per hour along Mission Drive were entered into the model.

To assess the traffic noise impacts from the adjacent roads on the project, the first step is to determine the baseline or the existing noise condition. The second is to then compare the baseline to future level results, based on expected traffic growth, and the maximum allowable noise exposure.

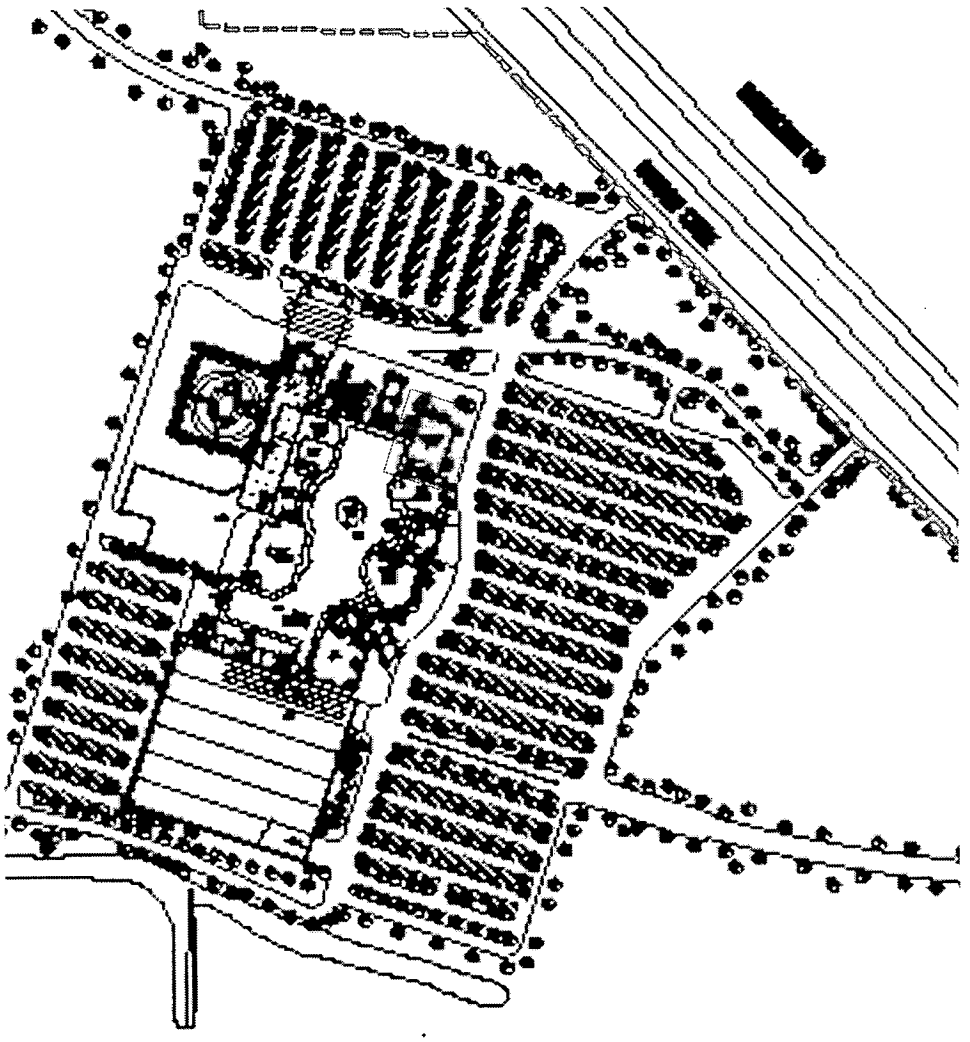
To asses existing noise conditions, VRPA Technologies staff compiled current traffic counts and existing geometric conditions. Staff conducted noise level measurements within the project site on September 8, 2005. Noise measurements were conducted during peak hours and while aircrafts from the Madera Municipal Airport were in the air. The purpose of the measurements was to evaluate the accuracy of the model in describing traffic noise exposure within the project site. The project site plan and noise-monitoring sites are shown in Figures 3, 4, 5, and 6.

Noise monitoring equipment consisted of an Extech Type 2 sound level meter datalogger. Noise measurements were conducted in terms of the equivalent energy sound level (L_{eq}). Measured L_{eq} were compared to L_{eq} values calculated (predicted) by the Sound 2000 model. Traffic volumes, truck mix and vehicle speeds were used as inputs to the model. The results of this comparison are shown in Table 3.

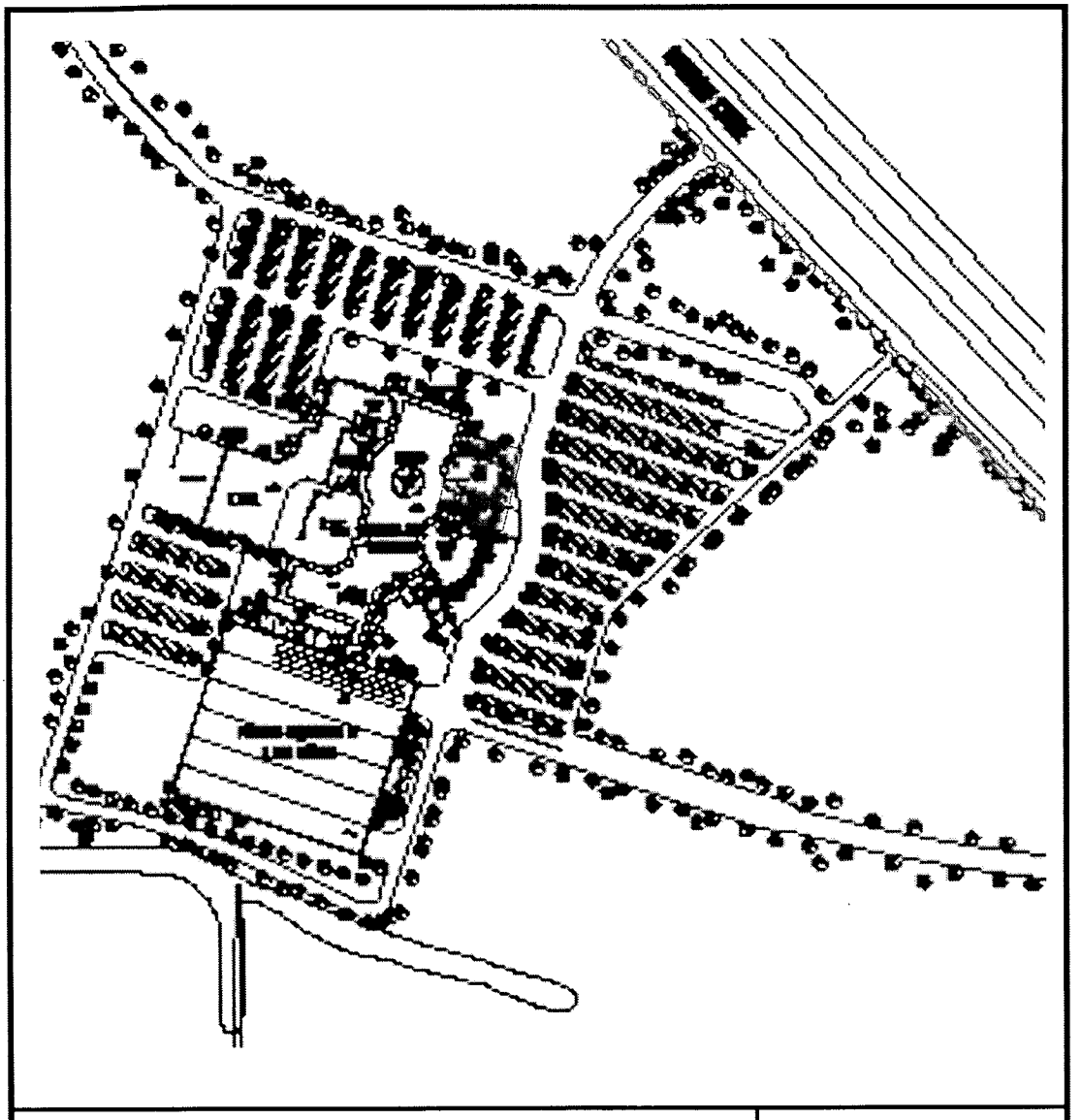
Noise measurements locations at the project site are shown in Figures 3, 4, 5, and 6, and are representative of the approximate location of the closest proposed building setback from State Route 99 and Golden State Boulevard or Mission Drive for Alternative D. Results of the noise analysis are reflected in Table 3, and are further described in technical worksheets at the back of this NIA. The existing noise levels for each alternative are currently below the FHWA standards for exterior noise.

TABLE 3
NOISE IMPACTS FOR EXISTING CONDITIONS

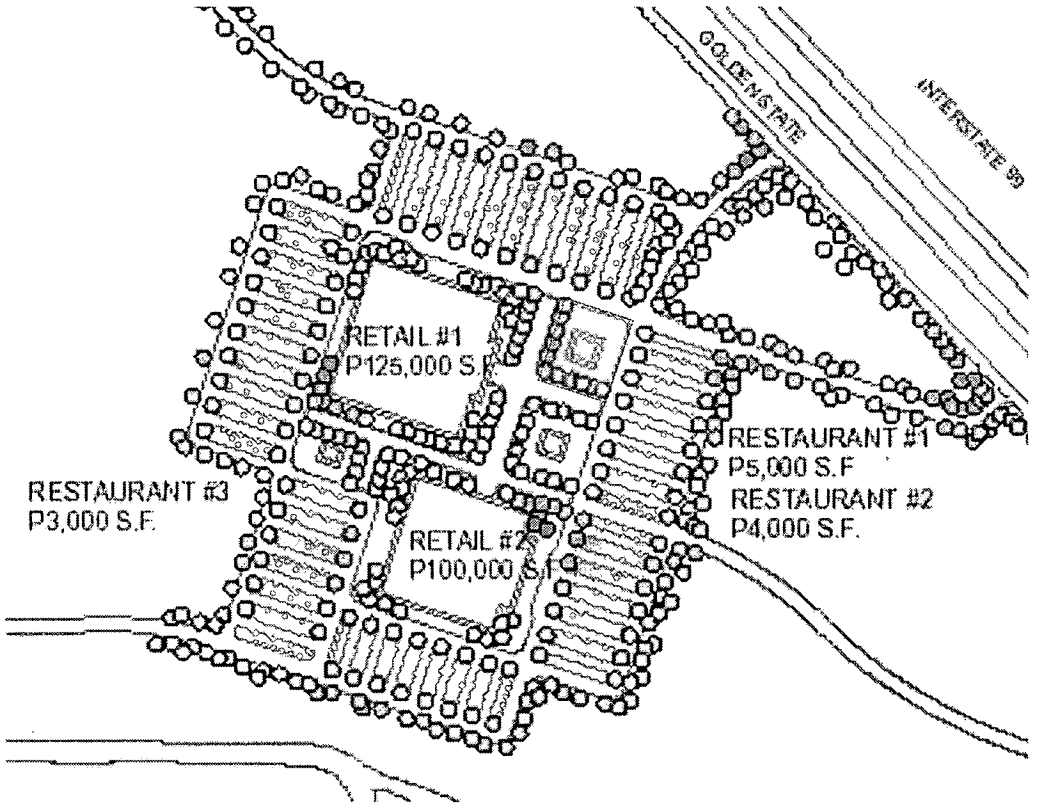
Receptor	Existing Leq Measured	Existing Leq Predicted	Diff. (Model Calibration Amount)
Alternative A	53.2	55.4	2.2
Alternative B	52.9	54.8	1.9
Alternative C	55.1	57.8	2.7
Alternative D	39.5	38.9	-0.6



Receptor Location Alternatives A	Figure 3
Legend Receptor Location	



Receptor Location Alternatives B	Figure 4
Legend Receptor Location	

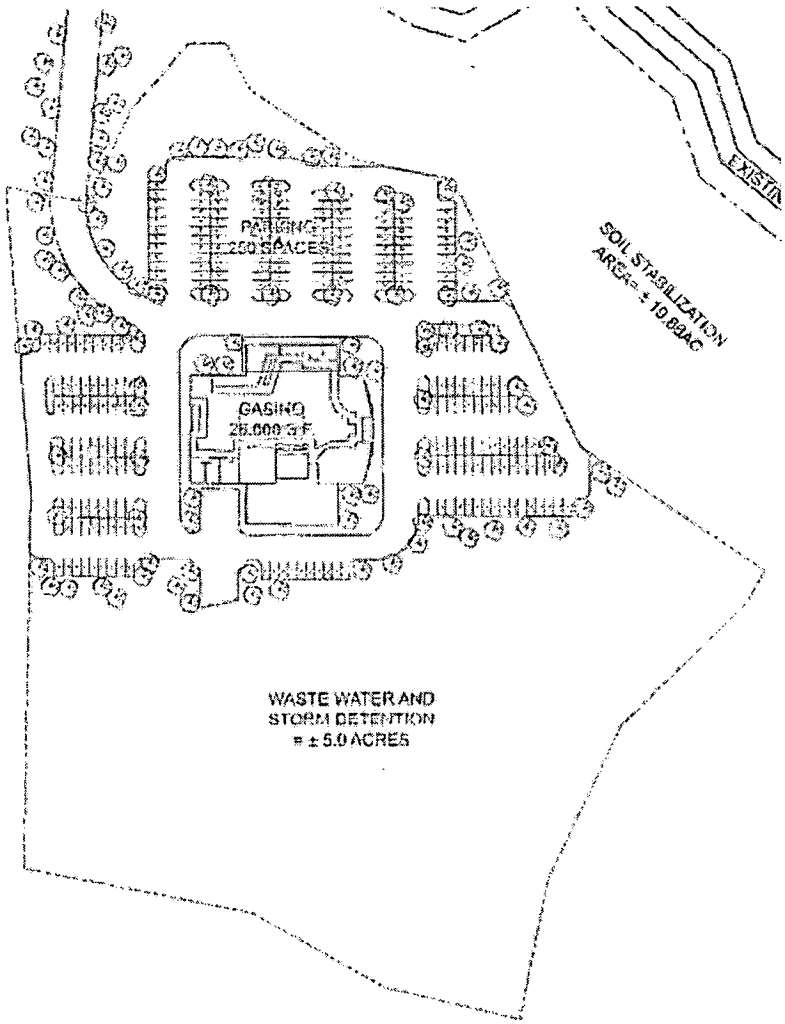


Receptor Location Alternatives C

Figure 5

Legend

Receptor Location



Receptor Location Alternatives D	Figure 6
Legend Receptor Location	

Off-Site receptors

Adjacent to the north and south of the project site for Alternatives A, B, and C, there are a few rural homes. The Madera County's General Plan Noise Element allows for a maximum 65 dB for outdoor areas of residences adjacent to State Route 99. The residential homes to the south are of importance because a majority of the project traffic will travel north and south on Golden State Boulevard as the traffic flows to and from Avenue 17. An analysis of the closest home to Golden State Boulevard proves that the addition of the proposed project will not exceed the Madera County noise criteria or the FICON noise criteria for the year 2008. In the year 2030, it is predicted that the noise levels at the outdoor areas will exceed Madera County's noise criteria with or without the project. The project however, will not exceed the +2 dB increase of traffic noise with the project. Results are shown in Table 3.

Madera Municipal Airport

Madera Municipal Airport is located approximately 1.5 miles south of the Project location for Alternatives A, B, and C. There are approximately 139 Aircraft operations per day. The airport accommodates business jet and turbojet type aircrafts (No Commercial Airlines). Typical approach and departure noise produced by business type aircrafts are shown in the appendix. Existing noise measurements were taken while an aircraft was in the air and it was noted that the noise meter would jump to approximately 58.0 to 60.0 dB. Based on the existing noise level analysis and the typical aircraft noise pollution (FAA), the Madera Municipal Airport does not have a significant impact on the proposed project location for Alternatives A, B, and C.

2008 and Future Conditions

Impacts in the Project area resulting from opening day and 25 years of growth and development (2008 & 2030) are described in this Section. In this scenario forecasted traffic volumes for the year 2008 and 2030 were used in the model to analyze future year conditions. Results are identified in Table 3. Project traffic from the proposed Alternatives was then added to the forecasted 2008 and 2030 volumes and then used in the model to analyze 2008 and future year plus project conditions. These results are also identified in Table 3.

TABLE 3
NOISE IMPACTS FOR YEAR 2008 AND FUTURE CONDITIONS

Receptor	2008 No Project Leq	2008 Plus Project Leq	2008 no Project vs 2008 Plus Project (Diff)	Future No Project Leq	Future Plus Project Leq	Future No Project vs Future Plus Project (Diff)
Alternative A	55.8	55.9	0.1	58.7	58.7	0.1
Alternative B	55.2	55.3	0.1	58.0	58.1	0.1
Alternative C	58.2	58.3	0.1	61.0	61.1	0.1
Alternative D	39.3	44.1	4.8	42.2	45.3	3.1
Residential Receptor	63.3	64.9	1.6	67.8	69.3	1.5

Interior Noise Analysis

Construction methods complying with current building code requirements will reduce exterior noise levels by at least 20-25 dB if windows and doors are closed. An evaluation of existing and predicted future noise levels indicate that this reduction will be sufficient for compliance with the FHWA 52 dB interior standard.

Exterior Noise Analysis

Results of the analysis indicate that Alternatives A, B, C, and D receptors will not exceed FICON's criterion of +5 dB with the addition of the proposed project alternative. For the undeveloped site, the future traffic noise exposure at the closest proposed building setback is shown in Table 3. Since 2030 traffic represents worst-case condition, it provides the basis for assessing noise mitigation requirements. Exterior noise mitigation will not be required for either of the proposed Alternatives to satisfy FICON noise standards.

Construction Noise

Use of construction equipment during the development of the Project could lead to a temporary increase in noise levels in the immediate project area. The operation of typical equipment for road construction projects can range in noise levels from 78 dBA to 89 dBA as shown in Table 4. Temporary noise impacts ranging from 75 dBA to 85 dBA could result from construction at the identified sensitive receptors.

TABLE 4
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, L_{eq})*
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

NOTE: * Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

Parking Lot Noise

Parking lot noise can be an annoyance to adjacent sensitive receptors. Estimates of the maximum noise levels associated with some parking lot activities are presented in Table 5, Maximum Noise Levels Generated by Parking Lots. Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dB at 48 feet for normal speech to 50 dB at 50 feet for very loud speech. The adjacent properties to the project site's parking lot are more than 50 feet away; therefore parking lot noise from the project will not be significant to nearby receptors.

TABLE 5
Noise Levels Generated by Parking Lots

Noise Source	Maximum Noise Levels □ 50 ft. from source
Car door slamming	63 dBA
Car starting	60 dBA
Car accelerating	55 dBA
Car idling	65 dBA
People shouting, laughing	61 dBA

Source: Wieland Associates, 2002

INVESTIGATION OF APPROPRIATE MITIGATION MEASURES

Temporary Noise Mitigation

Temporary noise impacts will result from construction of the proposed Project. As a result, the following mitigation measures and others in the FHWA's noise ordinance should be implemented to reduce the potential for noise impacts during construction:

- construction of the Project, along areas adjacent to existing residential land use development, shall be restricted to weekdays and normal daytime hours (7:00 a.m. to 7:00 p.m.) to minimize impacts;
- construction noise impacts in areas with large numbers of affected residences can be ameliorated by providing local residents with information on the expected type and duration of construction;
- construction equipment shall be properly muffled and maintained; and
- the contractor work specifications for all construction activities shall reflect these measures and shall be subject to review and approval.

APPENDIX A

ACOUSTICAL TERMINOLOGY

The following terminology has been used for purposes of this NIA:

Ambient Noise Level: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7 p.m. to 10p.m. and ten decibels to sound levels in the night before 7 a.m. and after 10 p.m.

Decibel, dBA: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micro-newtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition often decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

L_{eq}(h): The hourly value of L_{eq}.

L_{max}: The maximum noise level recorded during a noise event

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). L_{10} equals the level exceeded 10 percent of the time.

$L_n(h)$: The hourly value of L_n.

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

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

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

Note: *CNEL and DNL represent daily levels of noise exposure averaged on an annual basis,* while L_n *represents the average noise exposure for a shorter time period, typically one hour.*

Appendix B
Sound 2000 Analysis

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2008 TRAFFIC

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
ALT A	55.8
ALT B	55.2
ALT C	58.2
RESIDENC	63.3

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
Alternative D - Existing

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Rec 1	38.9

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
North Fork Casino 2008 Traffic

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Alt A	55.8
Alt B	55.1
Alt C	58.2

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
ALTERNATIVE D - 2008 Traffic

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
REC 1	39.3

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2008 PLUS PROJECT TRAFFIC

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
ALT A	55.9
ALT B	55.3
ALT C	59.3
RESIDENC	64.9

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
Alternative D - 2008 Plus Project

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Rec 1	44.1

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2030 NO PROJECT TRAFFIC

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
ALT A	58.7
ALT B	58.0
ALT C	61.0
RESIDENC	67.8

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
ALTERNATIVE D - 2030 Traffic

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
REC 1	42.2

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2030 PLUS PROJECT TRAFFIC

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
ALT A	58.7
ALT B	58.1
ALT C	61.1
RESIDENC	69.3

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
ALTERNATIVE D - 2030 Plus Project

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
REC 1	45.3

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2008 TRAFFIC

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Residenc	63.3

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2008 TRAFFIC PLUS PROJECT

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Residenc	64.8

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2030 TRAFFIC

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Residenc	67.8

SOUND32 - RELEASE 07/30/91, MODIFIED 04/22/00

TITLE:
NORTH FORK CASINO 2030 TRAFFIC PLUS PROJECT

BASED ON FHWA-RD-108 AND
CALIFORNIA REFERENCE ENERGY MEAN EMISSION LEVELS

RECEIVER	LEQ
Residenc	69.2