

**APPENDIX D**

**Environmental Noise Assessment**

**ENVIRONMENTAL NOISE ASSESSMENT**

**KERN CANYON RANCH G.P.A., Z.C. AND EIR  
BAKERSFIELD, CALIFORNIA**

**PREPARED FOR**

**MOUNTAIN VIEW BRAVO, LLC  
C/O PORTER-ROBERTSON  
1200 21<sup>ST</sup> STREET  
BAKERSFIELD, CALIFORNIA 93301**

**PREPARED BY**

**BROWN-BUNTIN ASSOCIATES, INC.  
VISALIA, CALIFORNIA**

**FEBRUARY 2, 2000  
(Revised April 25, 2000)**

## **1. INTRODUCTION**

The project site is located in Section 17, north of Highway 178 and west of Masterson Street, in northeast Bakersfield. A general plan amendment and zone change are proposed to create residential and commercial land uses.

The purpose of this analysis is to quantify the noise impacts which may directly or indirectly result from the development and to identify mitigation measures which may be used to minimize noise impacts. The principal noise sources of concern are project-related traffic, and noise generated by Mesa Marin Raceway which potentially could impact noise-sensitive uses proposed by the project. It is intended that the findings and recommendations of this study be incorporated into the Draft Environmental Impact Report being prepared for the project.

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

## **2. THRESHOLDS OF SIGNIFICANCE**

Appendix G (Environmental Checklist Form) of the CEQA Guidelines indicates that significant noise impacts occur when the project exposes people to noise levels in excess of standards established in local noise ordinances or general plan noise elements, or causes a substantial permanent or temporary increase in noise levels above levels existing without the project.

### **a. Noise Level Standards**

The standards for noise levels that apply to this project are those within the Metropolitan Bakersfield 2010 General Plan.

For transportation-related noise (e.g. traffic), the General Plan sets a standard of 65 dB CNEL at the exterior of noise-sensitive uses. Noise-sensitive uses include residences, schools, hospitals and churches.

For noise sources not related to transportation (e.g. Mesa Marin Raceway), the hourly noise level performance standards shown in Table I are applicable.

<b>TABLE I</b> <b>HOURLY NOISE LEVEL PERFORMANCE STANDARDS</b> <b>METROPOLITAN BAKERSFIELD 2010 GENERAL PLAN</b>		
<b>Maximum Acceptable Noise Level, dBA</b>		
<b>Min./Hr. (<math>L_n</math>)</b>	<b>Day (7a-10p)</b>	<b>Night (10p-7a)</b>
30 ( $L_{50}$ )	55	50
15 ( $L_{25}$ )	60	55
5 ( $L_{5.3}$ )	65	60
1 ( $L_{1.7}$ )	70	65
0 ( $L_{max}$ )	75	70

Note:  $L_n$  means the percentage of time the noise level is exceeded during an hour.  $L_{50}$  means the level exceeded 50% of the hour,  $L_{25}$  is the level exceeded 25% of the hour, etc.

Although the hourly noise level performance standards shown in Table I have five categories, the hourly  $L_{50}$  and  $L_{max}$  standards usually determine compliance. Therefore, those two categories will be used in this analysis.

**b. Increases in Ambient Noise Levels**

**Transportation-related Noise**

Table II is based on the standards and recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from airport improvement projects. Table II generally applies to transportation noise that is usually expressed in terms of average noise exposure during a 24-hour period, such as the Day/Night Average Level ( $L_{dn}$ ) or the Community Noise Equivalent Level (CNEL).

**TABLE II**  
**SUBSTANTIAL INCREASES FOR**  
**TRANSPORTATION NOISE EXPOSURE**

Ambient Noise Level Without Project (L <sub>dn</sub> or CNEL)	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Sources: FICON as applied by Brown-Buntin Associates, Inc.

**Non-transportation Noises**

For non-transportation (stationary) noise sources, it is common to assume that a minimum 3 dB increase in noise levels represents the threshold for significant noise impacts. This is based on laboratory tests that indicate a 3 dB increase is the minimum change perceptible to most people.

**3. SETTING**

The project site currently is vacant. Surrounding property is used predominantly for agricultural purposes. Sources of noise in the project vicinity are traffic and the Mesa Marin Raceway located south of the site. Figure 1 shows the vicinity of the project.

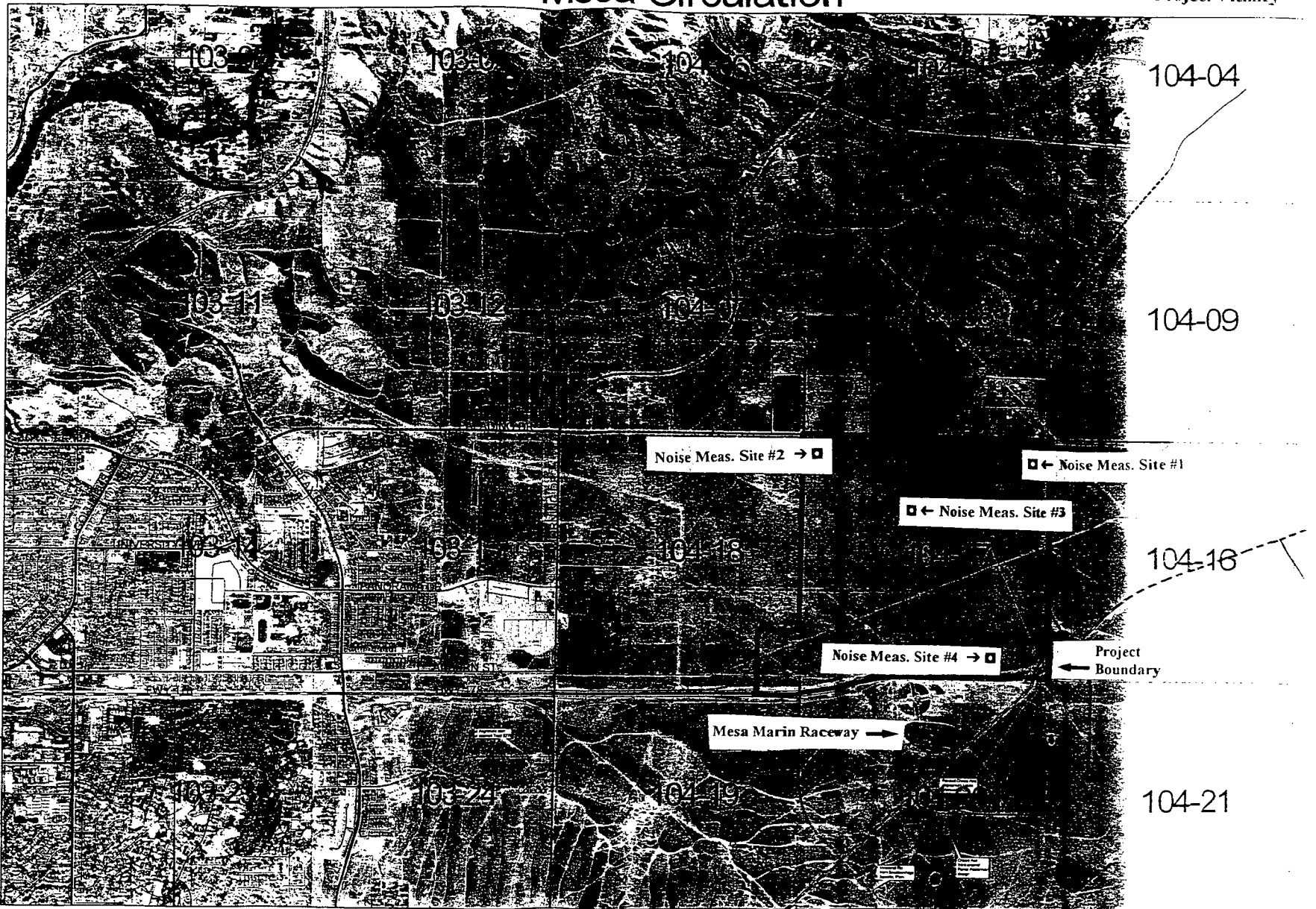
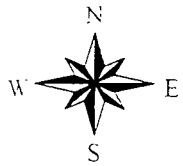
**a. Ambient Noise Level Measurements**

Ambient noise level measurements were conducted within the site on October 19, 1999. The measurement sites are noted on Figure 1.

Noise monitoring equipment used for the study consisted of a Larson Davis Laboratories Model 820 integrating sound level meter equipped with a Bruel & Kjaer (B&K) Type 4176 ½" microphone. The instrumentation complies with applicable requirements of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters and was calibrated prior to use with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements.

# Mesa Circulation

Project vicinity



FW 071 502  
Future FW 176  
Future Street  
Future Arterial  
Future Collector



2000 0 2000 4000 Feet

8/25/98

Table III shows the results of the ambient noise levels measurements. At the three sites that are distant from Route 178 (Sites 1, 2 & 3),  $L_{50}$  noise levels ranged from approximately 32-34 dBA. Such levels are typical of undeveloped areas that are unaffected by significant noise sources, such as traffic.

<p style="text-align: center;"><b>TABLE III</b></p> <p style="text-align: center;"><b>AMBIENT NOISE LEVEL MEASUREMENTS</b></p> <p style="text-align: center;"><b>KERN CANYON RANCH G.P., Z.C. AND E.I.R.</b></p> <p style="text-align: center;"><b>OCTOBER 19, 1999</b></p>				
Site No.	Time	$L_{50}$	$L_{max}$	Comments
1	10:00-10:15 a.m.	32.0	58.5	Local traffic
2	10:20-10:35 a.m.	32.6	48.8	Local traffic, aircraft
3	10:40-10:55 a.m.	33.8	45.6	Distant traffic, birds
4	11:00-11:15 a.m.	60.2	70.1	Route 178 traffic

Source: Brown-Buntin Associates, Inc.

#### b. Existing Traffic Noise Levels

An analysis of existing traffic noise levels in the project vicinity was prepared using the FHWA Highway Traffic Noise Prediction Model<sup>1</sup> and traffic data obtained from the traffic engineering study prepared for the project<sup>2</sup>. Appendix B provides a summary of the traffic data used in the model to calculate traffic noise levels. Roadways having less than 5,000 ADT were not analyzed since traffic noise levels for these low-volume roadways are negligible. An adjustment to traffic noise levels was made for the existing block wall along Fairfax Road south of Route 178. No adjustment was made for the wood fences bordering Route 178. The wood fences provide almost no noise reduction.

The FHWA Model is the analytical method currently favored by most state and local agencies, including Caltrans, for highway traffic noise prediction. The Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly  $L_{eq}$  values for free-flowing traffic conditions, and is generally considered to be accurate within  $\pm 1.5$  dB. The Model assumes a clear view of traffic with no shielding at the receiver location. To predict CNEL values, it is necessary to determine the hourly distribution of traffic for a typical day and

adjust the traffic volume input data to yield an equivalent hourly traffic volume. The Calveno traffic noise emission curves were used as recommended by Caltrans to more accurately calculate noise levels generated by California traffic.

Table IV shows calculated CNEL values at assumed typical residential setbacks (125 feet for Route 178; 75 feet for other roadways) from major roadways near the project. Also shown in Table IV is the distance from roadway centers to the 60 dB CNEL contour. Note that existing traffic noise levels do not exceed the 65 dB CNEL compatibility standard, except along Fairfax Road from north of Route 178 to Auburn Street.

<b>TABLE IV</b> <b>EXISTING TRAFFIC NOISE LEVELS</b> <b>AT ASSUMED TYPICAL RESIDENTIAL SETBACK FROM ROADS</b>		
<b>Roadway</b>	<b>CNEL, dB</b>	<b>Distance to 65 dB CNEL Contour, Feet</b>
<b>Panorama Drive</b>		
Fairfax-Morning	62.2	49
Morning-Project Boundary	---	---
Proj. Boundary-Masterson	---	---
<b>Auburn Street</b>		
Fairfax-Morning	61.0	41
<b>Route 178</b>		
Oswell-Fairfax	56.0	31
Fairfax-Morning	61.0	68
Morning-Vineyard	60.9	66
Vineyard-Masterson	61.1	68
Masterson-Alfred Harrell	60.9	67
<b>Fairfax Road</b>		
S. of Route 178	61.8	46
Route 178-Auburn	66.8	99
Auburn-Panorama	65.2	78
<b>Morning Drive</b>		
Route 178-Panorama	56.9	22
<b>Vineyard Road</b>		
N. of Route 178	---	---
<b>Route 184</b>		
Niles-Route 178	58.9	30
<b>Route 178 (Future Alignment)</b>		
W. of Masterson	---	---
E. of Masterson	---	---
Source: Brown-Buntin Associates, Inc.		



#### 4. PROJECT IMPACTS AND MITIGATION MEASURES

##### a. Project-related Traffic Noise Impacts

Project-related traffic noise impacts were analyzed for year 2010 and 2020 conditions with and without the project, as shown in Tables V and VI. The methods used to calculate traffic noise exposure were the same as used for existing conditions. The traffic conditions used in the analysis are shown in Appendix B.

Table V (year 2010 conditions) shows that the project will not cause a significant traffic noise impact within the project or outside of the project. Significant noise impacts are caused by exceeding the 65 dB CNEL Noise Element standard, or by causing a substantial increase in noise levels (see Table II).

Table VI (year 2020 conditions) shows that the project will cause a significant traffic noise impact within the project along the future alignment of Route 178, Masterson Street and Paladino Drive. Outside the project site, a significant traffic noise impact will occur along Fairfax Road from Panorama to Paladino.

##### *Mitigation*

Traffic noise affecting the project site at build-out (year 2020) that will create significant noise impacts will occur along the future alignment of Route 178, Masterson Street and Paladino Drive. Noise from these roads can be mitigated by setting residential uses back from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of Route 178, the minimum setback distance would be 188 feet; for Masterson Street and Paladino Drive, the minimum setbacks would be 84 and 86 feet, respectively. Sound walls also could be used to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant should establish necessary wall heights and locations.

Off-site traffic noise impacts will occur along Route 178, Morning Drive, Route 184 and Fairfax Road. Usually, there are no feasible means to mitigate off-site traffic noise. Substantial increases in off-site traffic noise are directly related to substantial increases in traffic volumes caused by development, and are therefore considered an unavoidable adverse significant impact.

**TABLE V**  
**PROJECT-RELATED TRAFFIC NOISE<sup>1</sup>**  
**YEAR 2010**

Roadway	CNEL, dB			Significant Impact <sup>2</sup>
	2010 No Project	2010 w/Project	Change	
<b>Panorama Drive</b>				
Fairfax-Morning	61.5	62.6	+1.1	No
Morning-Project Boundary	---	62.3	---	No
Proj. Boundary-Masterson <sup>2</sup>	---	---	---	---
<b>Auburn Street</b>				
Fairfax-Morning	60.0	60.7	+0.7	No
<b>Route 178</b>				
Oswell-Fairfax	66.9	68.1	+1.1	No
Fairfax-Morning	62.4	65.2	+0.9	No
Morning-Vineyard	62.3	64.2	+1.9	No
Vineyard-Masterson <sup>2</sup>	62.3	62.9	+0.6	No
Masterson-Alfred Harrell	62.5	63.1	+0.6	No
<b>Fairfax Road</b>				
S. of Route 178	62.9	63.6	+0.7	No
Route 178-Auburn	67.5	68.3	+0.8	No
Auburn-Panorama	65.7	66.2	+0.5	No
<b>Morning Drive</b>				
Route 178-Panorama	58.6	63.5	+4.9	No
<b>Vineyard Road</b>				
N. of Route 178 <sup>2</sup>	---	63.4	---	No
<b>Route 184</b>				
Niles-Route 178	62.1	63.8	+1.7	No

<sup>1</sup>Calculated at assumed typical residential setback (125 feet from Route 178; 75 feet for other roadways).

<sup>2</sup>Streets within or adjacent to project.

Source: Brown-Buntin Associates, Inc.

**TABLE VI**  
**PROJECT-RELATED TRAFFIC NOISE<sup>1</sup>**  
**YEAR 2020**

Roadway	CNEL, dB			Significant Impact?
	2020 No-Project	2020 w/Project	Change	
<b>Panorama Drive</b>				
Fairfax-Morning	61.5	62.8	+1.3	No
Morning-Project Boundary	---	64.9	---	No
Proj. Boundary-Masterson <sup>2</sup>	---	65.2	---	No
<b>Auburn Street</b>				
Fairfax-Morning	62.3	63.8	+1.5	No
<b>Route 178</b>				
Oswell-Fairfax	70.1	70.7	+0.6	No
Fairfax-Morning	68.7	69.6	+0.9	No
Morning-Vineyard	67.9	68.2	+0.3	No
Vineyard-Masterson <sup>2</sup>	59.2	60.9	+1.7	No
Masterson-Alfred Harrell	61.8	61.9	+0.1	No
<b>Fairfax Road</b>				
S. of Route 178	63.1	63.3	+0.2	No
Route 178-Auburn	67.1	67.5	+0.4	No
Auburn-Panorama	67.5	68.0	+0.5	No
Panorama-Paladino	65.9	67.5	+1.6	Yes
<b>Morning Drive</b>				
S. of Route 178	62.8	64.1	+1.3	No
Route 178-Panorama	63.6	64.8	+1.2	No
<b>Vineyard Road</b>				
S. of Route 178	63.3	64.4	+1.1	No
N. of Route 178 <sup>2</sup>	---	63.0	---	No
<b>Route 184</b>				
Niles-Route 178	67.3	67.1	-0.2	No
<b>Route 178 (Future Alignment)</b>				
W. of Masterson <sup>2</sup>	69.4	67.7	-1.7	Yes
E. of Masterson	69.0	70.2	+1.2	No
<b>Masterson Street</b>				
N. of Route 178 <sup>2</sup>	---	65.8	---	Yes
<b>Paladino Drive</b>				
Fairfax-Morning	64.2	65.9	+1.7	Yes
Morning-Project Boundary	63.3	65.9	+2.6	Yes
Project Boundary-Masterson <sup>2</sup>	63.1	65.9	+2.8	Yes
Masterson-Alfred Harrell	63.1	65.9	+2.8	Yes

<sup>1</sup>Calculated at assumed typical residential setback (125 feet from Route 178; 75 feet for other roadways).

<sup>2</sup>Streets within or adjacent to project.

Source: Brown-Buntin Associates, Inc.

## b. Construction Noise Impacts

During the construction of the project, noise from construction activities would potentially impact noise-sensitive land uses in the immediate area. Activities involved in construction would generate noise levels at 50 feet as indicated by Table VII. Construction activities would be temporary in nature and would most likely occur only during the daytime hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained. Since construction noise is temporary and will occur mostly during daytime hours, it is not considered significant. However, the hours of operation of noise-producing equipment should be restricted to 7:00 a.m. to 7:00 p.m, Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturday and Sunday. Effective mufflers should be fitted to gas- and diesel-powered equipment.

Type of Equipment	Maximum Level, dB (50 Ft.)
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: Cunniff 1977

## c. Mesa Marin Raceway Noise

As shown by Figure 1, Mesa Marin Raceway is located directly south of the project site. The center of the raceway oval is approximately 1200 feet from the southern boundary of the project site.

The raceway features NASCAR sanctioned stock car races. During the 1999 racing season, which extended from March through October, 26 evenings of racing were scheduled. Most of the events occurred on Saturdays, although a few were scheduled on Thursday, Friday or Sunday.

Noise levels due to qualifying and racing at Mesa Marin that are used in this report were obtained from the acoustical analysis prepared for the City of Bakersfield by Gordon Bricken and Associates, Consulting Acoustical and Energy Engineers<sup>3</sup>. The Bricken report is based on measured noise levels around Mesa Marin Raceway for one evening of racing (September 9, 1995). As the Bricken report states:

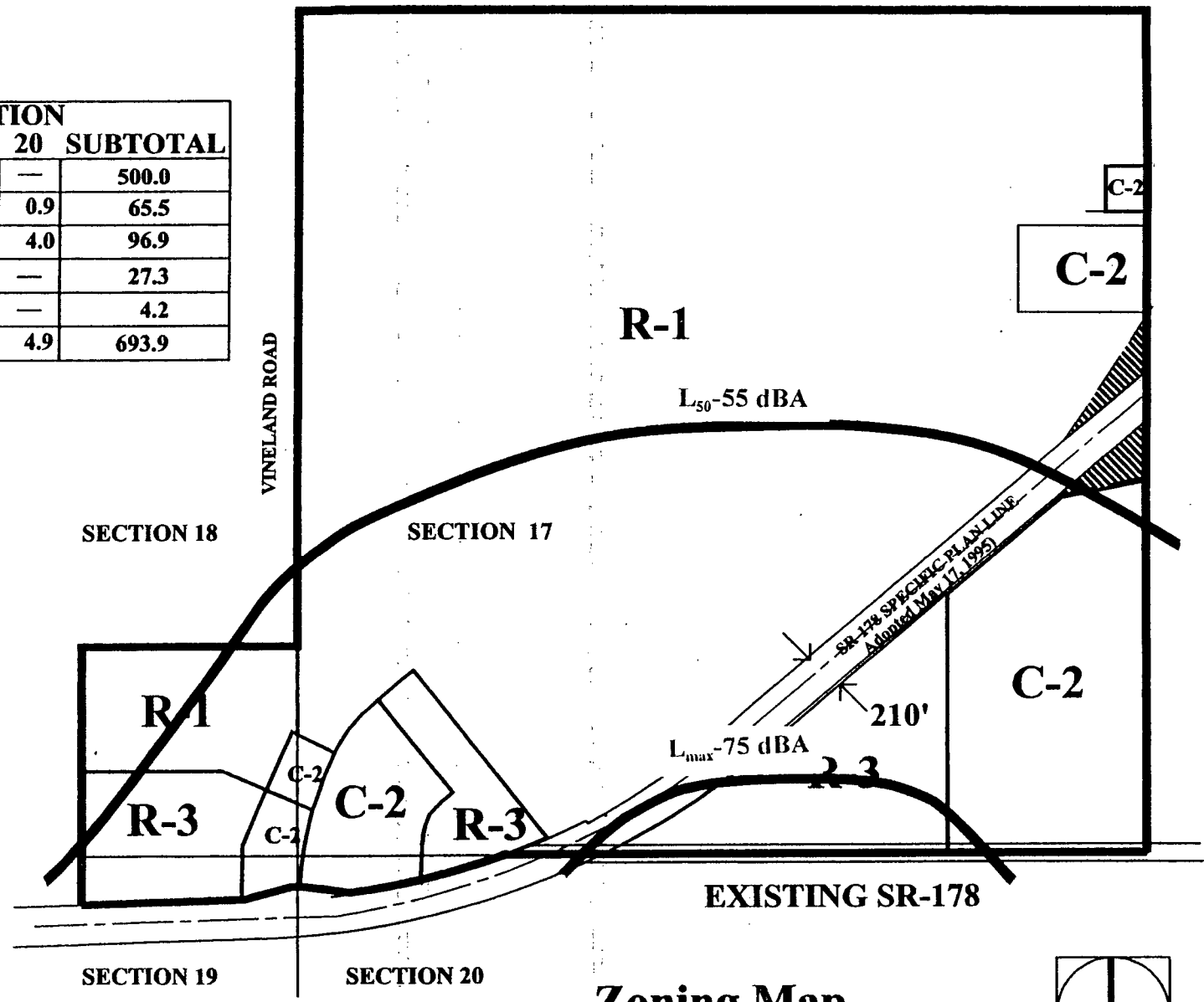
“No single day survey can define the conditions that will exist at the raceway each time. It literally takes years to define the operations using measurements. One day's results are not likely to be another day's results. Thus, the idea of allowing short-term measurements of a race track to define impact areas is faulty. Using measurements alone will lead to different results depending on the day of the measurement. Therefore, the measurement results reported for September 9, 1995, are accurate only for that day. They must be used with care in making long-term land use decisions.”

Although Bricken's study is based on only one evening of racing, it represents the most recent and most complete analysis of noise levels generated by Mesa Marin Raceway.

The noise levels measured on November 9, 1995 were used as a basis for plotting noise contours around the raceway that are presented in the Bricken report. The contours are based on the Late Model Stock Car race, which produced the highest noise levels. One of the most important factors that effects noise propagation, and therefore the extent of the noise contours, is wind speed and direction. According to National Weather Service records at Meadows Field, the wind direction is 250 degrees (west) to 350 degrees (north) 66% of the time in this area. The range of wind speeds 66% of the time is 4 to 9 knots. Additionally, 95% of all winds over 10 knots occur in the range of 270 degrees to 360 degrees. Although calm conditions and wind blowing from the south or southeast can occur, the prevailing wind direction is from the north and northwest.

Figure 2 shows  $L_{50}$  and  $L_{max}$  noise contours for 5 knot northwest winds superimposed on the project site. The noise contours are derived from Exhibit 4 and 3 of the Bricken report. The  $L_{50}$ -55 dBA

ZONE	SECTION				SUBTOTAL
	17	18	19	20	
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
<b>TOTAL</b>	<b>640.1</b>	<b>40.0</b>	<b>8.9</b>	<b>4.9</b>	<b>693.9</b>

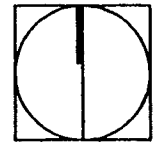


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 661 / 327-0362

Figure 2  
 Mesa Marin Raceway Noise Contours  
 5 Knot Northwest Winds

**Zoning Map**  
**Kern Canyon Ranch**  
 Section 17  
 Mountain View Bravo, LLC

1-05-2000  
 Scale: 1"=1000'



NORTH

and  $L_{\max}$ -75 dBA contours represent the limits of noise compatibility for racing that occurs in the daytime hours (7:00 a.m.-10:00 p.m.). The nighttime (10:00 p.m.-7:00 a.m.) noise standards are an  $L_{50}$  of 50 dBA and an  $L_{\max}$  of 70 dBA. The  $L_{50}$ -50 dBA contour was not presented in the Bricken report.

Figure 3 shows the  $L_{50}$  -55 dBA and  $L_{\max}$ -75 dBA contours for calm conditions. These are derived from Exhibit 7 of the Bricken report. The noise contours for calm conditions extend further north than noise contours representing wind from the northwest. Although noise contours representing the predominate northwest wind conditions usually will prevail, the more extensive contours representing calm conditions may sometimes occur.

The critical noise contour shown in Figures 2 and 3 is the  $L_{50}$ -55 dBA. Residential uses proposed within the  $L_{50}$ -55 dBA contour shown in Figures 2 and 3 would be incompatible with the City's noise standards, and therefore cause a significant noise impact.

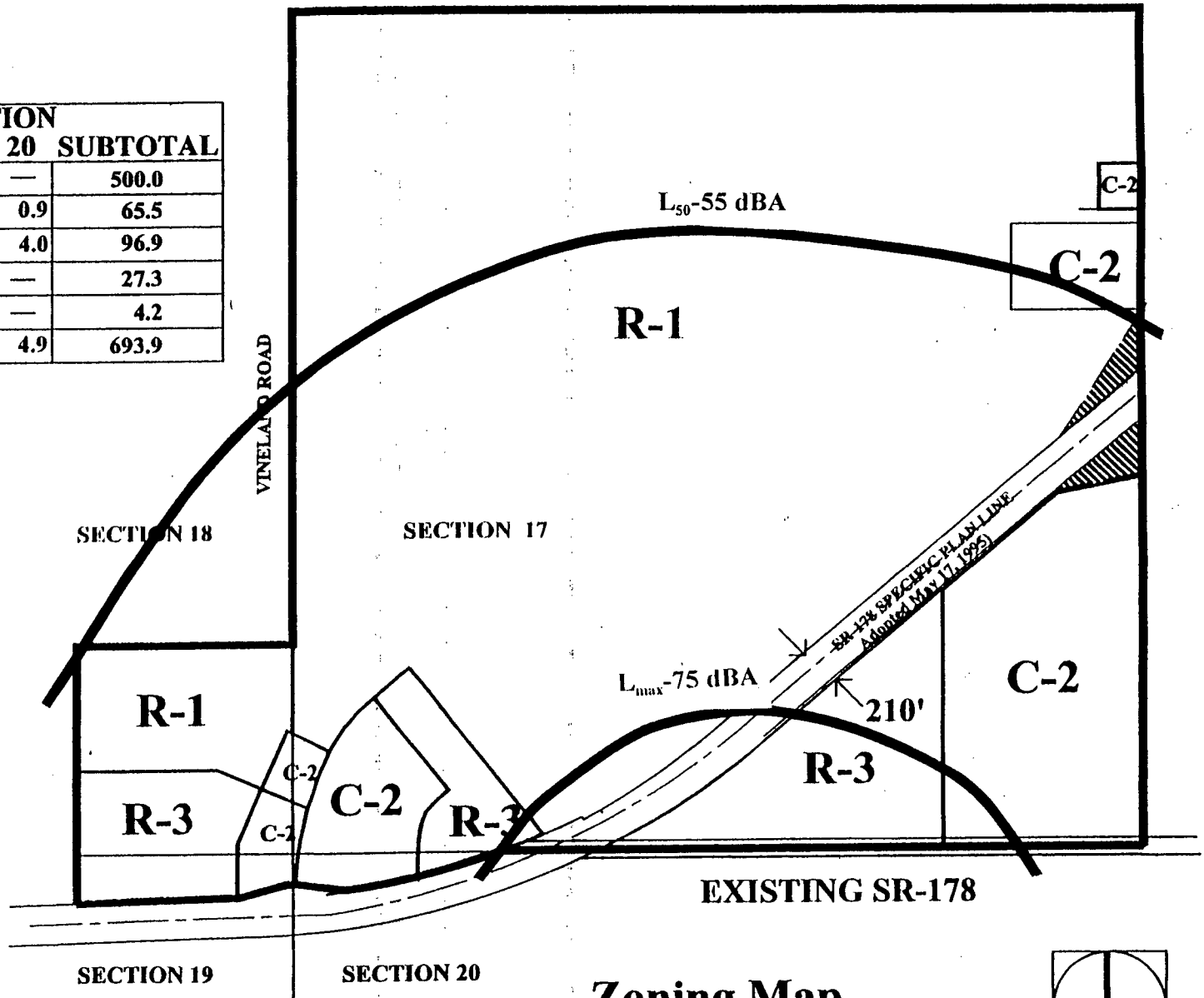
### ***Mitigation***

A Conditional Use Permit (C.U.P.) approved January 25, 1995 for the Mesa Marin Raceway indicates that noise from the raceway will be reduced to satisfy certain standards specified in the C.U.P. It is unknown if such noise reduction has taken place.

There are no mitigation measures that can be applied on the project site that will effectively reduce noise from the Mesa Marin Raceway to levels that satisfy the 2010 General Plan compatibility criteria. Sound walls could be constructed along the perimeter of the site, but, at best, they would reduce noise only at residences adjacent to the sound wall. Any effective mitigation measures would have to be applied at the raceway itself, such as berms or walls. Even if additional berms or walls were constructed at the raceway, it is not certain that they would substantially reduce noise impacts.

Raceway noise is therefore considered to be a significant unavoidable adverse impact.

ZONE	SECTION				SUBTOTAL
	17	18	19	20	
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
<b>TOTAL</b>	<b>640.1</b>	<b>40.0</b>	<b>8.9</b>	<b>4.9</b>	<b>693.9</b>



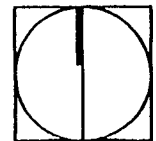
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Figure 3  
Mesa Marin Raceway Noise Contours  
Calm Winds

## Zoning Map Kern Canyon Ranch

Section 17  
Mountain View Bravo. LLC

1-05-2000  
Scale: 1"=1000'



NORTH



## 5. SOURCES CONSULTED

1. FHWA Highway Traffic Noise Prediction Model, FHWA-RD-108, U.S. Department of Transportation, Federal Highway Administration, December 1978.
2. Crenshaw Traffic Engineering, *Traffic Impact Study, Mixed Use Development, North of S.R. 178, West of Masterson Street, East of Vineland Road and South of Paladino, City of Bakersfield*, Revised, March 10, 2000.
3. Gordon Bricken and Associates, *Acoustical Analysis Mesa Marin Raceway, City of Bakersfield*, February 9, 1996.

## APPENDIX A

### ACOUSTICAL TERMINOLOGY

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

**CNEL:** Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

**DECIBEL, dB:** A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

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

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

**NOTE:** The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while  $L_{eq}$  represents the average noise exposure for a shorter time period, typically one hour.

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

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

## ACOUSTICAL TERMINOLOGY

### **NOISE EXPOSURE CONTOURS:**

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

### **NOISE LEVEL REDUCTION (NLR):**

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

### **SEL or SENEL:**

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

### **SOUND LEVEL:**

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

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052

Description: Existing Conditions -- Kern Canyon Ranch

Ldn/CNEL: CNEL

Hard/Soft: Soft

<i>Segment</i>	<i>Roadway Name</i>	<i>Segment Description</i>	<i>ADT</i>	<i>Day</i>	<i>Eve %</i>	<i>Night %</i>	<i>% Med. Trucks</i>	<i>% Heavy Trucks</i>	<i>Speed</i>	<i>Distance</i>
1	Panorama Drive	Fairfax-Morning	5390	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	-	-	-	-	-	-	-	-
3	Panorama Drive	Project Boundary-Masterson	-	-	-	-	-	-	-	-
4	Auburn Street	Fairfax-Morning	4120	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	2190	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	6940	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	6670	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	7010	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	6780	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	15560	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	15600	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	10900	75	15	10	2	2	45	75
13	Morning Drive	Rt 178-Panorama	1600	75	15	10	2	2	45	75
14	Vineyard Road	N. of Rt. 178	-	-	-	-	-	-	-	-
15	Route 184	Niles-Rt 178	2290	75	15	10	5	2	45	75

Appendix B-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052

Description: 2010 No Project -- Kern Canyon Ranch

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day	Eve %	Night %	% Med. Trucks	% Heavy Trucks	Speed	Distance
1	Panorama Drive	Fairfax-Morning	4625	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	-	-	-	-	-	-	-	-
3	Panorama Drive	Project Boundary-Masterson	-	-	-	-	-	-	-	-
4	Auburn Street	Fairfax-Morning	3225	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	27100	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	9475	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	9325	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	9325	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	9800	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	20200	75	15	10	2	2	45	125
11	Fairfax Road	Rt 178-Auburn	18150	75	15	10	2	2	45	125
12	Fairfax Road	Auburn-Panorama	12125	75	15	10	2	2	45	125
13	Morning Drive	Rt 178-Panorama	2338	75	15	10	2	2	45	75
14	Vineyard Road	N. of Rt. 178	-	-	-	-	-	-	-	-
15	Route 184	Niles-Rt 178	4750	75	15	10	5	2	45	75

Appendix B-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052

Description: 2010 With Project -- Kern Canyon Ranch

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Heavy Trucks	Speed	Distance
1	Panorama Drive	Fairfax-Morning	5875	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	5575	75	15	10	2	2	45	75
3	Panorama Drive	Project Boundary-Masterson	-	-	-	-	-	-	-	-
4	Auburn Street	Fairfax-Morning	3825	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	35500	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	18275	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	14275	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	10625	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	11250	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	23600	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	22100	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	13475	75	15	10	2	2	45	75
13	Morning Drive	Rt 178-Panorama	7263	75	15	10	2	2	45	75
14	Vineyard Road	N. of Rt. 178	7200	75	15	10	2	2	45	75
15	Route 184	Niles-Rt 178	6970	75	15	10	5	2	45	75

Appendix B-4  
 FHWA-RD-77-108 Highway Traffic Noise Prediction Model  
 Data Input Sheet  
 Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052  
 Description: 2020 No Project Kern Canyon Ranch  
 Ldn/CNEL: Ldn  
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day	Eve %	Night %	% Med. Trucks	% Heavy Trucks	Speed	Distance
1	Panorama Drive	Fairfax-Morning	5300	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	-	-	-	-	-	-	-	-
3	Panorama Drive	Project Boundary-Masterson	-	-	-	-	-	-	-	-
4	Auburn Street	Fairfax-Morning	5500	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	55800	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	40700	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	34100	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	4600	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	8250	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	21000	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	16850	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	18400	75	15	10	2	2	45	75
13	Fairfax Road	Panorama-Paladino	12750	75	15	10	2	2	45	75
14	Morning Drive	S. of Rt. 178	6150	75	15	10	2	2	45	75
15	Morning Drive	Rt 178-Panorama	7500	75	15	10	2	2	45	75
16	Vineyard Road	S. of Rt. 178	6900	75	15	10	2	2	45	75
17	Vineyard Road	N. of Rt. 178	-	-	-	-	-	-	-	-
18	Route 184	Niles-Rt 178	15500	75	15	10	5	2	45	75
19	Route 178(Fut. Align.)	W. of Masterson	22000	75	15	10	4.5	3.5	65	125
20	Route 178(Fut. Align.)	E. of Masterson	20000	75	15	10	4.5	3.5	65	125
21	Masterson Street	N. of Rt 178	-	-	-	-	-	-	-	-
22	Paladino Drive	Fairfax-Morning	8660	75	15	10	2	2	45	75
23	Paladino Drive	Morning-Project Boundary	6950	75	15	10	2	2	45	75
24	Paladino Drive	Project Boundary-Masterson	6600	75	15	10	2	2	45	75
25	Paladino Drive	Masterson-Alfred Harrell	6650	75	15	10	2	2	45	75

## Appendix B-5

## FHWA-RD-77-108 Highway Traffic Noise Prediction Model

## Data Input Sheet

Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052

Description: 2020 With Project Kern Canyon Ranch

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day	Eve %	Night %	% Med. Trucks	% Heavy Trucks	Speed	Distance
1	Panorama Drive	Fairfax-Morning	7200	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	10000	75	15	10	2	2	45	75
3	Panorama Drive	Project Boundary-Masterson	10700	75	15	10	2	2	45	75
4	Auburn Street	Fairfax-Morning	7800	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	65100	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	50000	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	36000	75	15	10	4.5	3.5	45	125
8	Route 178	Vinèyard-Masterson	6800	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	8450	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	22250	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	18500	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	20500	75	15	10	2	2	45	75
13	Fairfax Road	Panorama-Paladino	18150	75	15	10	2	2	45	75
14	Morning Drive	S. of Rt. 178	8308	75	15	10	2	2	45	75
15	Morning Drive	Rt 178-Panorama	9750	75	15	10	2	2	45	75
16	Vineyard Road	S. of Rt. 178	8950	75	15	10	2	2	45	75
17	Vineyard Road	N. of Rt. 178	6550	75	15	10	2	2	45	75
18	Route 184	Niles-Rt 178	15000	75	15	10	5	2	45	75
19	Route 178(Fut. Align.)	W. of Masterson	14600	75	15	10	4.5	3.5	65	125
20	Route 178(Fut. Align.)	E. of Masterson	26300	75	15	10	4.5	3.5	65	125
21	Masterson Street	N. of Rt 178	12300	75	15	10	2	2	45	75
22	Paladino Drive	Fairfax-Morning	12650	75	15	10	2	2	45	75
23	Paladino Drive	Morning-Project Boundary	12650	75	15	10	2	2	45	75
24	Paladino Drive	Project Boundary-Masterson	12650	75	15	10	2	2	45	75
25	Paladino Drive	Masterson-Alfred Harrell	12650	75	15	10	2	2	45	75