padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

NOISE STUDY REPORT
WILLOW SPRINGS VESTING TENTATIVE TRACT MAP NO. 7128
(APN 252-400-04)
KERN COUNTY, CALIFORNIA

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Project No. 1402-2411

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EXHIBITS

1.0 STUDY PURPOSE

The purpose of this Noise Study is to respond to concerns expressed by the Kern County Planning and Natural Resources Department regarding existing ambient noise levels at the property, primarily associated with operation of the Willow Spring Raceway. This Noise Study also meets the requirements of Implementation Measure G of the Kern County General Plan Noise Element as described in Section 4.1.

2.0 PROPERTY LOCATION AND PHYSICAL DESCRIPTION

The subject property is located in rural Kern County, within the Willow Springs Planning Area, approximately 2.6 miles northwest of the community of Rosamond (see inset map in Exhibit A). The property consists of assessor's parcel number 252-400-04, and is approximately 40 acres in area. It is bounded by Constellation Avenue to the south and 65th Street West to the east. The topography of the property may be characterized as a gently sloping plain, from an elevation of approximately 2,570 feet in the northwest corner to 2,545 feet above mean sea level in the southeast corner. A small east-west oriented ridgeline with an elevation of approximately 2,600 is located between the property and Willow Springs International Raceway, and serves to attenuate racing-related noise at the property (see Exhibit A). Photographs of the property are provided as Exhibit B.

3.0 SOUND, NOISE, AND ACOUSTICS

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

3.1 FREQUENCY

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

3.2 SOUND PRESSURE LEVELS AND DECIBELS

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

3.3 ADDITION OF DECIBELS

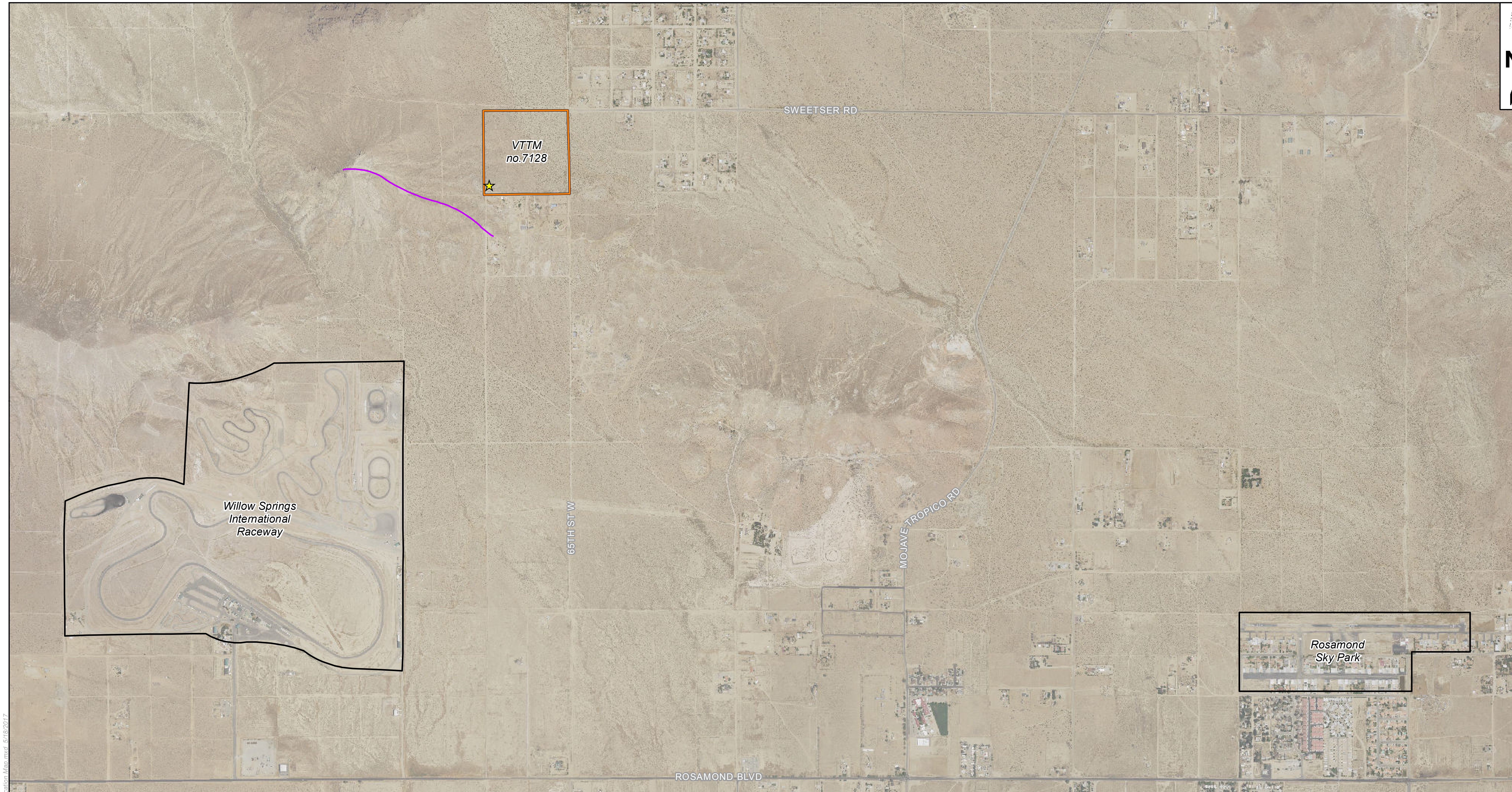
Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

3.4 A-WEIGHTED DECIBELS

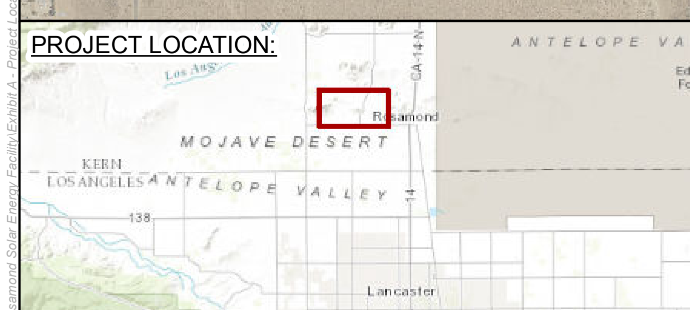
The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, and D-scales), but these scales are rarely used in conjunction with highway-traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels or dBA. Table 1 describes typical A-weighted noise levels for various noise sources.



PROJECT LOCATION:



LEGEND:

- ☆ Noise Measurement Site
- Noise Attenuating Ridgeline
- Area of Interest
- VTTM no.7128

0 750 1,500
FEET

Source: NAIP Imagery 2016, Esri Online Topo Baesmap, County of Kern
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: VTTM = Vesting Tentative Tract Map
This map was created for informational and display purposes only.

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PROJECT NAME:	
WILLOW SPRINGS VTTM NO. 7128 KERN COUNTY, CA	
PROJECT NUMBER: 1402-2411	DATE: May 2017

PROJECT LOCATION MAP

EXHIBIT A

Rosamond Solar Energy Facility\Exhibit A - Project Location Map.mxd 5/18/2017

Back of Exhibit A

a. Noise monitoring site at property southwest corner, facing west

b. Intervening ridgeline (photo center), facing southwest

Back of Exhibit B

Table 1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: Caltrans 2009.

3.5 HUMAN RESPONSE TO CHANGES IN NOISE LEVELS

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels, when exposed to steady, single-frequency ("pure-tone") signals in the midfrequency (1,000 Hz–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound, would generally be perceived as barely detectable.

3.6 NOISE DESCRIPTORS

Noise in our daily environment fluctuates over time. Some fluctuations are minor, but some are substantial. Some noise levels occur in regular patterns, but others are random. Some noise levels fluctuate rapidly, but others slowly. Some noise levels vary widely, but others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.

Equivalent Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a one-hour period.

Percentile-Exceeded Sound Level (L_{xx}): L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.

Day-Night Level (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.

Community Noise Equivalent Level (CNEL): Similar to L_{dn}, CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

3.7 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.

3.7.1 Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 decibels for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 decibels for each doubling of distance from a line source.

3.7.2 Ground Absorption

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water,), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 decibels per doubling of distance.

3.7.3 Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

3.7.4 Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. Vegetation between the highway and receiver is rarely effective in reducing noise because it does not create a solid barrier.

4.0 APPLICABLE NOISE STANDARDS

4.1 KERN COUNTY GENERAL PLAN NOISE ELEMENT

The Noise Element of the General Plan is a mandatory element as required by California Government Code Section 65302 (f). The state requires that local jurisdictions prepare statements of policy indicating their intentions regarding noise and noise sources, establish desired maximum noise levels according to land use categories, set standards for noise emission from transportation and fixed-point sources, and prepare implementation measures to control noise. Noise Elements are prepared in accordance with Guidelines for the Preparation and Content of Noise Elements of the General Plan, published by the California Office of Noise Control in 1976.

The major purpose of the Noise Element is to establish reasonable standards for maximum desired noise levels in Kern County, and to develop an implementation program which could effectively mitigate potential noise problems. The implementation measures below have been designed so that residential or other sensitive noise land uses would not be subject to exterior noise levels in excess of 65 dBA L_{dn}, and interior noise levels in excess of 45 dBA L_{dn}. The Noise Element provides the following goals and policies.

- **Goal 1**: Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.
- **Goal 2**: Protect the economic base of Kern County by preventing encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.
- **Policy 1**: Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.
- **Policy 2**: Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health (DOSH).
- **Policy 3**: Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.
- **Policy 4**: Utilize good land use planning principles to reduce conflicts related to noise emissions.
- **Policy 5**: Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels: a) 65 dB L_{dn} or less in outdoor activity areas; b) 45 dB L_{dn} or less within interior living spaces or other noise sensitive interior spaces.
- **Policy 6**: Ensure that new development in the vicinity of airports will be compatible with existing and projected airport noise levels as set forth in the Airport Land Use Compatibility Plan (ALUCP).
- **Policy** 7: Employ the best available methods of noise control.

Implementation Measures

- **Measure A**: Utilize zoning regulations to assist in achieving noise-compatible land use patterns.
- **Measure B**: Require proper acoustic treatment of transportation facilities, including highways, airports and railroads.
- **Measure C**: Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.
- **Measure D**: Review discretionary development plans for proposed residential or other noise sensitive land uses in noise-impacted areas to ensure their conformance with the noise standards of 65 dBA L_{dn} or less in outdoor activity areas and 45 dBA L_{dn} or less within interior living spaces.
- **Measure E**: Review discretionary development plans to ensure compatibility with the adopted ALUCP.
- **Measure F**: Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.
- **Measure G**: At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall: a) be the responsibility of the applicant, b) be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics, c) be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.
- **Measure H**: Encourage cooperation between the County and the incorporated cities within the County to control noise.
- **Measure I**: Noise analyses shall include recommended mitigation, if required, and shall: a) include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions, b) include estimated noise levels for existing and projected future (10 – 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element, c) include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element, d) include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

- **Measure J**: Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

4.2 WILLOW SPRINGS SPECIFIC PLAN NOISE ELEMENT

This Noise Element supplements the General Plan Noise Element and focuses on local noise concerns, primarily Willow Springs International Raceway and military aircraft associated with Edwards Air Force Base. The following are goals and policies of the Specific Plan Noise Element.

- **Goal 1**: To protect the health and welfare of Kern County residents.
- **Goal 2**: To minimize disruption of the quality of life resulting from excessive noise.
- **Goal 3**: To maintain reasonable noise level standards, consistent with the Kern County Noise Element.
- **Policy 1**: Noise emissions from new development will be controlled and off-site levels limited to the standards of the Kern County General Plan Noise Element.
- **Policy 2**: Noise attenuation mitigation will be required of all new development within areas subject to excessive noise levels.
- **Policy 3**: Land uses will be categorized in the following manner, and the noise level standards adopted in accordance with the Kern County Noise Element:
  a) Insensitive Land Uses: Noise level does not affect the successful operation of these particular activities. A wide variety of uses can be included in this category, including public utilities, transportation systems, and other noise-related uses.
  b) Moderately Sensitive Land Uses: Some degree of noise control must be present if these activities are to be successfully carried out. Included here are general business and recreational uses.
  c) Sensitive Uses: Lack of noise control will severely impact these uses, reducing the quality of life. This category primarily contains residential uses.
  d) Highly Sensitive Uses: A high degree of noise control is necessary for the successful operation of these activities. Examples include hospitals and churches.
- **Policy 4**: The policies of the Kern County Noise Element are hereby adopted by reference.
- **Policy 5**: Land uses nearby the Willow Springs International Raceway shall be predominately commercial, industrial, or resource management.

Implementation Measures

- **Measure 1**: The following standards are established as the maximum desired ambient noise levels. Noise shall be attenuated so as not to exceed these standards:

Table 2. Willow Springs Specific Plan Noise Level Standards

Land Use Noise Sensitivity	Daytime (dBA L_{eq})	Nighttime (dBA L_{eq})	24-Hour (dBA CNEL)
Insensitive uses	65	60	75
Moderately sensitive uses	60	55	70
Sensitive uses (residential)	55	45	65
Highly sensitive uses	50	40	60

5.0 NOISE ENVIRONMENT

The noise environment of the property includes motor vehicle noise and public address system (race announcers) noise from Willow Springs International Raceway, vehicle traffic on local paved and unpaved roadways, motorcycle and all-terrain vehicle (ATV) use on surrounding unpaved roads and trails, and occasional overflights of aircraft. The dominant source of noise is the Willow Springs International Raceway during race events.

5.1 WILLOW SPRINGS INTERNATIONAL RACEWAY

Willow Springs International Raceway is comprised of seven different tracks. The nearest track is Speedway Willow Springs, located approximately 3,500 feet southwest of the property:

1. Big Willow: main track with nine turns.
2. Balcony Autocross and Skid Pad.
3. Horse Thief Mile.
4. Willow Springs Cart Track.
5. Streets of Willow Springs: 1.8 mile road course.
6. Speedway Willow Springs: 0.25 mile oval.
7. Walt James Stadium: 3/8 mile banked dirt oval.

5.2 ROSAMOND SKYPARK

This is a private airfield primarily serving residences surrounding the airfield. Rosamond Skypark has two runways at an elevation of 2,415 feet above mean sea level. It is located approximately 2.4 miles southeast of the property. Noise contours associated with forecast airport activity at Rosamond Skypark in the ALUCP indicate the 60 dBA CNEL contour is located approximately 1.6 miles from the property. Based on the low volume of flights observed (one on May 13, 2017) and large distance to the 60 dBA CNEL noise contour, Rosamond Skypark has no meaningful effect on existing ambient noise levels at the property. In any case, aircraft noise was included in the noise monitoring data collected and presented in this Study.

6.0 METHODS

The focus of this Noise Study was to conduct noise monitoring to calculate 24-hour (CNEL) noise levels to determine if the noise standards identified in the Willow Springs Specific Plan would be exceeded on a peak day. A peak day was defined as a race day at Willow Springs International Raceway with four events scheduled.

6.1 SELECTION OF MEASUREMENT SITE

Noise measurement was conducted at the southwest corner of the property, nearest to Willow Springs International Raceway (see Exhibit A). The site is a small knoll with no topographic features in close proximity.

6.2 FIELD MEASUREMENT

Noise levels were measured for the entire scheduled race day (8 a.m. to 5 p.m.) on May 13, 2017, with races scheduled at four separate tracks. Noise levels (dBA L_{eq}) were recorded each hour during that period. In addition, noise monitoring was conducted from 8:30 to 10:30 p.m. to identify typical evening and nighttime noise levels to allow calculation of 24-hour CNEL noise values. It should be noted that unscheduled nighttime racing was conducted at Speedway Willow Springs until 10:20 p.m. Therefore, measured evening and nighttime noise values are higher than typically experienced at the property.

Race events conducted during noise monitoring include:

- Speed Venture: Streets of Willow Springs track.
- Extreme Speed: Horse Thief Mile.
- Willow Springs Speedway: Speedway Track.
- Cobra Club: Big Willow Track.
- Unscheduled nighttime event at Speedway Willow Springs.

Noise measurements were conducted using a Larson-Davis LXT Type 1 Precision Integrating Sound Level Meter. The Meter was calibrated using a Larson-Davis CAL200 Calibrator at 114 dBA.

7.0 NOISE MONITORING RESULTS

A summary of noise data collected at the property is provided as Table 3. The primary source of measured sound levels was racing noise and wind noise. Motorcycle and ATV activity was low and did not detectably contribute to measured noise levels. Three aircraft overflights occurred during the monitoring period, one light civilian fixed wing and two helicopters, which did not detectably contribute to measured noise levels.

Table 3. Noise Monitoring Data Summary

Hour Ending	1-Hour Noise Level (dBA L_{eq})	Notes
0900	48.7	
1000	43.7	Racing activity decreased, motorcycle pass by Sweetser Road at 940
1100	53.2	Wind noise increased
1200	50.3	
1300	49.4	Wind noise decreased
1400	49.6	
1500	53.6	Racing activity increased, ATV pass by on Sweetser Road at 1455
1600	48.7	ATV pass by on Constellation Road at 1526
1700	49.1	
2100	47.7	
2200	42.3	Racing activity lower than during daytime
2300	35.4	Racing ends at 2220

8.0 24-HOUR NOISE LEVEL CALCULATIONS

A 24-hour noise levels with penalties for evening and nighttime noise were calculated and are summarized in Table 4. Note that the noise levels are much less than the CNEL standard for residential land uses (65 dBA) provided in the Willow Springs Specific Plan Noise Element. In addition, measured daytime and nighttime noise levels do not exceed the standards (55 dBA daytime, 45 dBA nighttime) for residential land uses provided in the Willow Springs Specific Plan Noise Element.

Table 4. 24-Hour Noise Level Calculation Summary

Hour Ending	1-Hour Noise Level (dBA L_{eq})	Data Source	CNEL Noise Penalty (dBA L_{eq})	L_{dn} Noise Penalty (dBA L_{eq})
0900	48.7	Monitored data	0	0
1000	43.7	Monitored data	0	0
1100	53.2	Monitored data	0	0

Hour Ending	1-Hour Noise Level (dBA L_{eq})	Data Source	CNEL Noise Penalty (dBA L_{eq})	L_{dn} Noise Penalty (dBA L_{eq})
1200	50.3	Monitored data	0	0
1300	49.4	Monitored data	0	0
1400	49.6	Monitored data	0	0
1500	53.6	Monitored data	0	0
1600	48.7	Monitored data	0	0
1700	49.1	Monitored data	0	0
1800	47.7	Assumed same noise level as measured from 2000-2100	0	0
1900	47.7	Assumed same noise level as measured from 2000-2100	0	0
2000	47.7	Assumed same noise level as measured from 2000-2100	5	0
2100	47.7	Monitored data	5	0
2200	42.3	Monitored data	5	0
2300	35.4	Monitored data	10	10
0000	35.4	Assumed same noise level as measured from 2200-2230	10	10
0100	35.4	Assumed same noise level as measured from 2200-2230	10	10
0200	35.4	Assumed same noise level as measured from 2200-2230	10	10
0300	35.4	Assumed same noise level as measured from 2200-2230	10	10
0400	35.4	Assumed same noise level as measured from 2200-2230	10	10
0500	35.4	Assumed same noise level as measured from 2200-2230	10	10
0600	35.4	Assumed same noise level as measured from 2200-2230	10	10
0700	35.4	Assumed same noise level as measured from 2200-2230	10	10
0800	42.0	Estimated based on data from 0800-0900 monitoring	0	0
Calculated 24-hour noise level			**48.9**	**48.1**

9.0 CONCLUSION

Racing-related noise at the Willow Springs International Raceway is attenuated at the property by geometric spreading and ground absorption based on the distance to the race tracks in use, as well as topographic shielding provided by the intervening ridgeline. Based on noise monitoring conducted for this Study, these effects reduce noise levels at the property below the standards of the Willow Springs Specific Plan Noise Element.