

This section of the Draft EIR presents an analysis of the proposed project's effect on the existing environment with respect to the generation of noise. Information presented in the setting and analysis subsections was obtained from noise measurements made at the project site and the Alameda County General Ordinance Code.

4.11.1 ENVIRONMENTAL SETTING

4.11.1.1 Characteristics of Noise

Noise is usually defined as unwanted sound. It is an undesirable byproduct of human society's normal day-to-day activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The definition of noise as unwanted sound implies that it has an adverse effect on people and their environment.

Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). The human ear does not respond uniformly to sounds at all frequencies, being less sensitive to very low and high frequencies than to medium frequencies that correspond with human speech. In response, the A-weighted noise level (or scale) has been developed, because it corresponds better with people's subjective judgment of sound levels. This A-weighted sound level is called the "noise level" and is referenced in units of dB(A). Because noise is measured on a logarithmic scale, a doubling of sound energy results in a 3 dB(A) increase in noise levels. However, changes in community noise levels of less than 3 dB(A) are not typically noticed by the human ear (U.S. Department of Transportation 1980). Changes in noise levels from 3 to 5 dB(A) may be noticed by individuals extremely sensitive to changes in noise. A 5 dB(A) increase is readily noticeable, while the human ear perceives a 10 dB(A) increase in sound level to be a doubling of sound.

Noise sources are classified in two forms: (1) point sources, such as pieces of stationary equipment; and (2) line sources, such as roadways with large numbers of point sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6.0 dB(A) for each doubling of distance from the source to the receptor (U.S. Department of Transportation 1980). Sound generated by a line source typically attenuates at a rate of 3.0 dB(A) and 4.5 dB(A) per doubling of distance from the source to the receptor (U.S. Department of Transportation 1980). Sound levels can also be attenuated by man-made or natural barriers, such as noise walls found along many urban freeways in California. Solid walls, berms, or elevation differences typically reduce noise levels by 5 to 10 dB(A) (U.S. Department of Transportation 1980). The noise attenuation provided by typical structures in California is provided below in **Table 4.11-1 Outside to Inside Noise Attenuation**, below.

**Table 4.11-1
Outside to Inside Noise Attenuation**

Building Type	Noise Reduction – dB(A)	
	Open Windows	Closed Windows
Residences	12	25
Schools	12	25
Churches	20	30
Hospitals/Convalescent	17	25
Homes	17	25
Offices	20	30
Theaters	17	25
Hotels/Motels	17	25

Source: U.S. Department of Transportation 1980.

When assessing community reaction to noise, there is an obvious need for a scale that averages varying noise exposures over time and quantifies the results in terms of a single number descriptor. Several scales have been developed that address community noise levels. Those that are applicable to this analysis are the Equivalent Noise Level (Leq) and the Community Noise Equivalent Level (CNEL). Leq is the average A-weighted sound level measured over a given time interval. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. CNEL is another average A-weighted sound level measured over a 24-hour time period and is adjusted to account for some individuals' increased sensitivity to noise levels during the evening and nighttime hours.

A CNEL noise measurement is obtained after adding 5 dB to sound levels occurring during the evening from 7 PM to 10 PM, and 10 dB to sound levels occurring during the nighttime from 10 PM to 7 AM. The 5 and 10 dB "penalties" are applied to account for peoples' increased sensitivity during the evening and nighttime hours. For example, the logarithmic effect of these additions is that a 60 dB(A) 24-hour Leq would result in a measurement of 66.7 dB(A) CNEL.

4.11.1.2 Characteristics of Vibration

Vibration is a unique form of noise in that its energy is carried through structures and the earth, whereas noise is carried through the air. Thus, vibration is generally felt and heard. Some vibration effects can be caused by noise (for example, the rattling of windows from truck pass-bys). This phenomenon is related to the coupling of acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated.

Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. For the purposes of this Draft EIR, vibration is described in units of velocity (inches per second) and is discussed in dB units in order to compress the range of numbers required to describe vibration.

The effect of vibration on structures and individuals varies depending on soil type, ground strata, and receptor location. Sensitivity to vibration varies from person to person. Peak velocities of 0.01 inches per second root-mean-square (RMS) are not generally noticeable, while velocities of 0.1 inches per second RMS can be troublesome to persons near the vibration source. Damage to structures can occur above 0.04 inches per second RMS.

4.11.1.3 Traffic Noise

The level of traffic noise depends on three primary factors: (1) the volume of the traffic; (2) the speed of the traffic; and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and a greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires.

4.11.1.4 Existing Conditions

The site is generally bounded by Interstates 205 and 580 to the north, Interstate 580 to the east, and existing rural residential development to the south and west (see **Figure 3.0-1**). The topography of the general area can be characterized as rolling hills that is vegetated with annual grasses. The open lands in the project area used for cattle grazing and wind farming.

To the south of the project site is a single rural residence atop a hilltop. To the west, along Midway Road and south of Interstates 205 and 580 there are approximately 11 rural residences; there are approximately 14 rural residences north of Interstates 205 and 580. All of these residences are within 1 mile of the race tracks.

The ambient noise environment at the raceway is dominated by traffic noise from the adjacent Interstates, the variable sound of the wind coming off of the Altamont Pass, as well as the sounds made by wind turbines in the immediate area. Wind generated noise, and the associated sound from wind turbines, in the project area is highly variable and is influenced by factors such as sustained wind speed, wind direction, meteorological conditions, and topography. Other noise generating land uses in the project area include the use of off-road vehicles/motorcycles on off-road tracks constructed on properties adjacent to or in close proximity to the raceway.

The ambient noise generated at the raceway is largely associated with on-track activities and varies from day to day. The 1996 CUP established a noise standard for on-track activities of 95 dB(A) which is discussed in detail in **Section 4.11.2, Regulatory Environment**.

4.11.2 REGULATORY ENVIRONMENT

The noise standard that applies to the proposed project is that established by the 1996 CUP. Condition 12 of that CUP establishes a maximum noise level for each vehicle of 95 dB(A) at a 100 foot radius on the north and west sides of the track.

The Office of the County Counsel has opined that certain noise standards, provided in Chapter 6.60 of the Alameda County General Ordinance Code, have never been applied to the race track and that, as a result, the standards in Chapter 6.60 do not provide an appropriate threshold of significance for the purposes of analyzing impacts under CEQA. The counsel's opinion is presented in **Appendix 4.11**. As such, the 1996 CUP maximum permitted noise level described above is the threshold for determination if noise generated at the raceway is an impact.

4.11.2.1 Alameda County East County Area Plan

The Alameda County East Area Plan (ECAP) establishes policies to minimize East County residents' and workers' exposure to excessive noise.

Policy 288: The County shall endeavor to maintain acceptable noise levels throughout East County.

4.11.3 ENVIRONMENTAL ANALYSIS

4.11.3.1 Thresholds of Significance

The proposed project would result in a significant impact if it would:

- Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local General Plan or noise ordinance or other standards.
- Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project to excessive noise levels.

- For a project within the vicinity of a of a private airstrip would the project expose people residing or working in the project area.

4.11.3.2 Methodology

4.11.3.2.1 Noise Monitoring

4.11.3.2.1.1 Race Weekend Noise Monitoring

Gordon Bricken & Associates conducted noise measurements at and around the AMP site on October 14 and October 15, 2006. A report outlining the measurement protocols, findings, and recommendations is included in **Acoustical Analysis, Altamont Motorsports Park** in **Appendix 4.11**. Noise measurements were taken at eight locations around the track during the two days of monitoring. The locations of these measurements are shown in Figure 4 of **Appendix 4.11**.

4.11.3.2.1.2 Description of Track Operations During Noise Monitoring

Monitoring was conducted during a series of weekend NASCAR related events which included a variety of different stock car and motorcycle racing events. The published schedule is included in Appendix 1 of **Appendix 4.11**. The actual schedule varied slightly from the published schedule. (Gordon Bricken 2006)

The NASCAR related events were run on the half-mile oval. The stock car events were run on the quarter mile oval and the road course. (Gordon Bricken 2006)

Each class of vehicles was allowed practice times, a qualifying run, preliminary heats in some cases, and a final event. The number of cars on the track varied during practice times; typically from six to ten. A qualifying run is usually one vehicle running two trips around a course, although on the particular weekend two cars were on the track at one time in qualifying periods. The heats consisted of six to twelve vehicles. The final events had as many as 32 vehicles. (Gordon Bricken 2006).

4.11.3.2.1.3 Ambient Conditions During Noise Monitoring

Short ambient noise measurements were conducted at six off-track locations at various times during the weekend. However, there were some variations from time to time. The results are presented in **Table 4.11-2, Typical Hourly Ambient Noise Conditions**.

Table 4.11-2
Typical Hourly Ambient Noise Conditions

Position	Lmax	L2	L8	L25	L50	Lmin
#2	60	59	58	56	54	44
#3	77	68	64	61	59	52
#4	64	62	60	58	56	52
#5	67	55	54	51	49	47
#6	85	65	61	58	55	52
#7	82	62	55	50	44	40

Source Gordon Bricken 2006

4.11.3.2.1.4 Measurement Results

Automatic monitors were placed at all locations as depicted on Figure 4 of **Appendix 4.11** except for Positions #6 and #7. Inspection of the plots of noise levels from the automatic monitors indicated that the highest levels tended to occur on the last event of each day, which was a 200 lap main event.

Positions #6 and #7 did not have automatic monitors. However, brief measurements at those two locations over the course of the two days indicated that the events were either not audible or just barely audible. As such, they could not be separated from the ambient noise records. This would indicate that the event levels never exceeded the ambient noise levels at Positions #6 and #7.

The Grand National West event on Sunday, October 15, 2007 produced higher noise levels than the Limited Sportsman events on Saturday, October 14, 2006. The maximum trackside level was 113 dB(A). The distribution was very narrow, with 79 percent of the passes by the race cars in the 109 to 113 dB(A) range.

The **Acoustical Analysis, Altamont Motorsports Park** (see **Appendix 4.11**) states that "The track's currently allowed maximum limit of 95 dB(A) appears to be met during all track operations except for the pit area. This is because there is no shielding in the form of walls, buildings, or grandstands that are on most of the other side of the track." (Gordon Bricken 2006) The 1996 CUP standard is exceeded at that location.

4.11.3.2.2 Drifting Noise Monitoring

Impact Sciences conducted noise measurements on Monday, December 3, 2007 during a demonstration of drifting. The number of cars on the track varied between two and three. The purpose of those measurements was to develop a general profile of the noise levels of drifting for comparative analysis to conventional

forms of motorsports. The drifting demonstrations consisted of groups of 2 and 3 cars circulating through a series of tight left and right turns as in a typical competition drifting event.

Three locations were monitored during the demonstration; P1, P2, and P5 as shown in Figure 1 of **Appendix 4.11**. The peak noise level recorded at Position 1 was 91 dB(A).

4.11.3.2.3 Interim Raceway Noise Standard

The Board implemented an interim noise standard for the raceway during preparation of this Draft EIR for the 2008 racing season that establishes a cumulative maximum sound level of 83 dB(A) at the property line for all race vehicles on track at any time. The nearest property line to the edge of the race track is approximately 100 feet from the south end of the race track (turns 1 and 2).

In response to the interim noise standard, the raceway has implemented a requirement for the current racing season that mandates the use of modern exhaust systems/muffler technology on all race vehicles. The county commissioned a noise study by Rosen, Goldberg, Der & Lewitz Inc. (RGDL) to assess the actual use of the technology, and RGDL conducted the study at a racing event on June 8, 2008. It was found that the interim noise standard was generally met during the race event; however the limit was exceeded at the property line between 11%–18% of the duration of the event, even with the implementation of the new muffler/exhaust requirement.

There are some types of race vehicles that have historically been run at the raceway for which the new exhaust system/muffler technology is not compatible. In those instances, if the county were to make the interim standard permanent, either those types of race vehicles would have to be excluded from running at the raceway until such time as the exhaust system/muffler technology was made compatible, or the county would have to establish a limitation on the number of times such vehicles could be run at the raceway or alternatively require a case-by-case permit for such events.

4.11.3.3 Impacts and Mitigation Measures

Potential Impact 4.11-1: Would the project result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or applicable ordinances or other standards?

As described above, Condition 12 of the 1996 CUP established the appropriate threshold of significance. The 1996 CUP establishes a maximum noise level for each racing vehicle of 95 dB(A) at a 100 foot radius on the north and west sides of the track.

Measurements taken during the October 14 and 15, 2006 race weekend monitored noise levels approximately 100 feet from the edge of the track (Position 1) and are presented in the **Acoustical Analysis, Altamont Motorsports Park** (see **Appendix 4.11**). Those measurements found that the maximum limit established by Condition 12 of the 1996 Conditional Use Permit was generally being maintained, with the exception of the pit/paddock side of the track, where there are openings along the track wall to allow race vehicles to enter and exit the track. That wall acts as a barrier to noise. **Mitigation Measure NOI-1** would ensure continued compliance with Condition 12 of the 1996 Conditional Use Permit, and thereby avoid a potentially significant impact by exposing people to noise levels in excess of an applicable standard.

Conclusion: Potentially significant

NOI-1: The maximum noise level of every race vehicle or motorcycle that is operated on any of the raceway's race tracks shall not exceed 95 dB(A) measured 100 feet from the vehicle on the race track. The project applicant shall measure the maximum noise level from each race vehicle prior to that vehicle being permitted on the race track. The project applicant shall submit a report of all measurements on a monthly basis to the ACDEH for review.

Significance After Mitigation: Less than significant

Potential Impact 4.11-2: Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Within the broad category of motorsports, drag racing is the one form of motorsports that is typically associated with the generation of sound levels that also generate significant groundborne vibrations. The 1996 Conditional Use Permit specifically prohibits drag racing as a form of motorsport, and the proposed rezoning does not seek to add drag racing as a permitted form of motorsports. All other forms of permitted racing, including the proposed addition of drifting, do not generate significant levels of groundborne vibrations that would be discernable beyond the site.

Therefore, the proposed project would not result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels, and therefore, it would be considered a less than significant impact.

Conclusion: Less than significant

Mitigation: None required

Potential Impact 4.11-3: Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Short ambient noise measurements were conducted at off-track locations at various times during the weekend of October 14 and 15, 2006, the results of which are presented in Table 2 of **Appendix 4.11**. Because those measurements were taken during a typical race weekend, it is not expected that those indicated ambient levels would discernibly change with the proposed project.

Ambient noise levels were not measured on Midway Road, which serves as the sole access to the raceway. The proposed increase in attendance above the current baseline is projected to result in a net increase of 250 (Sundays) to 444 (Friday evenings) vehicles (approximately 23% on both days) percent increase over baseline conditions) along Midway Road. The relatively minimal increase in traffic associated with the proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Conclusion: Less than significant

Mitigation Measure: None required

Potential Impact 4.11-4: Would the project expose people residing or working in the project to excessive noise levels within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport?

The project site is not located within an area covered by an airport land use plan. The nearest commercial or general aviation airport to the project site is the Byron Airport, located approximately 7 miles to the north.

Therefore, implementation of the project would not expose people residing or working in the project to excessive noise levels within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport.

Conclusion: No impact

Mitigation Measures: None required

Potential Impact 4.11-5: Would the project expose people residing or working in the project area to excessive noise levels in a private airstrip?

There is no known private airstrip within 2 miles of the project site.

Therefore, implementation of the project would not result in a safety hazard related to the operation of a commercial or general aviation airport for people residing or working in the project area.

Conclusion: No impact.

Mitigation Measures: None required.