



Private Motorsports Group, LLC  
Jason Plotke  
8902 E Via Linda #110-162  
Scottsdale, AZ 85258

May 2, 2016

Dear Mr. Plotke:

ACS has been asked to assess the potential noise impact from the proposed Private Motorsports race facility to the surrounding community. The proposed facility is located at the NWC of SR 238 and Ralston Road (Maricopa, AZ).

**TECHNICAL INFORMATION:**

Noise

*A-Weighted Sound Level* (dBA) - Sound pressure level, filtered or weighted at the various frequencies to approximate the response of the human ear.

| Changes in Intensity Level, dBA | Changes in Apparent Loudness |
|---------------------------------|------------------------------|
| 1                               | Almost imperceptible         |
| 3                               | Just perceptible             |
| 5                               | Clearly noticeable           |
| 10                              | Twice (or half) as loud      |

Noise Level Limits by Ordinance

The Maricopa Zoning Code sets forth the following noise level limits:

| TABLE 408.05.G: EXTERIOR AND INTERIOR NOISE LIMITS |                        |   |                            |   |                              |
|--|------------------------|---|----------------------------|---|------------------------------|
| Land Use Receiving the Noise                       | Noise-Level Descriptor | Exterior Noise Level Standard in Any Hour (dBA) |                            | Interior Noise-Level Standard In Any Hour (dBA) |                              |
|  |                        | Daytime (6 a.m.–10 p.m.)                        | Nighttime (10 p.m.–6 a.m.) | Daytime (6 a.m. – 10 p.m.)                      | Nighttime (10 p.m. – 6 a.m.) |
| Residential  | L <sub>50</sub>        | 55  | 45                         | 40  | 30                           |
|  | L <sub>max</sub>       | 70  | 60                         | 55  | 45                           |
| Medical, convalescent                              | L <sub>50</sub>        | 55  | 45                         | 45  | 35                           |
|  | L <sub>max</sub>       | 70  | 60                         | 55  | 45                           |
| Theatre, auditorium                                | L <sub>50</sub>        | -   | -                          | 35  | 35                           |
|  | L <sub>max</sub>       | -   | -                          | 50  | 50                           |
| Church, meeting hall                               | L <sub>50</sub>        | 55  | -                          | 40  | 40                           |
|  | L <sub>max</sub>       | -   | -                          | 55  | 55                           |
| School, library, museum                            | L <sub>50</sub>        | 55  | -                          | 40  | -                            |
|  | L <sub>max</sub>       | -   | -                          | 55  | -                            |

NOTE: ACS has been informed that the track will not be in operation during the nighttime hours (10pm – 6am). Therefore, only the daytime limits apply.

The Code also prohibits:

1. *Use of any automobile, motorcycle or other vehicle, engine or motor of whatever size, stationary or moving, instrument, device or thing, in such a manner as to create loud and unnecessary grating, grinding, rattling, or other noise.*
2. *Operating any mechanical device operated by gasoline, or otherwise, without having a muffler, in good working order and in constant operation, to prevent excessive or unusual noise and smoke; and no person shall use a muffler cutout, bypass, or similar device.*

However, ACS has been informed by the City that these concerns are superseded by compliance with the noise level limits.

## **FINDINGS:**

### **Source Noise Levels**

To help establish the typical baseline noise levels from this type of activity, ACS measured the noise levels at a Pro Autosports event on 4/17/16 at the Wild Horse Pass Motorsports Park. Based on measurements of various races of different classifications, ACS developed the following baseline noise levels at 100' (without the benefit of any type of barrier):

|                        | Average | Maximum |
|------------------------|---------|---------|
| Street Car             | 74 dBA  | 82 dBA  |
| Closed Wheel Race Cars | 87 dBA  | 97 dBA  |
| Open Wheel Race Cars   | 87 dBA  | 96 dBA  |

NOTE: The "average" levels were measured during peak times of the races. The "average" noise level limits listed in the City's Code are based on a 1 hour measurement. The average over an hour would have been less (if not substantially less) than the measurement results listed above.

### **Projected Noise Impact**

The nearest platted residential community is Maricopa Meadows, located approximately 3.6 miles to the southeast of the proposed track. The nearest potential residential community is located in unincorporated Pinal County (Sunset Mountains) approximately .85 miles to the southwest. It appears that the nearest residential home is located at 19899 N Deer Trail, approximately 1.5 miles to the southwest. ACS was also asked to examine the potential impact to the Southern Dunes Golf Club (approximately 1.4 miles to the east. Additionally, ACS examined the potential noise impact to the nearest dairy farm (approximately 1 mile to the south). Using the baseline measurements, ACS calculated the worst-case maximum potential noise levels:

#### **Nearest Residential Community – Maricopa Meadows**

|                  |                      |                |
|------------------|----------------------|----------------|
| Street Cars      | 29 dBA average (Leq) | 37 dBA maximum |
| Closed Race Cars | 42 dBA average (Leq) | 52 dBA maximum |
| Open Race Cars   | 42 dBA average (Leq) | 51 dBA maximum |

#### **Nearest Potential Residential Community - Sunset Mountains**

|                  |                      |                |
|------------------|----------------------|----------------|
| Street Cars      | 41 dBA average (Leq) | 49 dBA maximum |
| Closed Race Cars | 54 dBA average (Leq) | 64 dBA maximum |
| Open Race Cars   | 54 dBA average (Leq) | 63 dBA maximum |

#### Nearest Residential Home

|                  |                      |                |
|------------------|----------------------|----------------|
| Street Cars      | 36 dBA average (Leq) | 44 dBA maximum |
| Closed Race Cars | 49 dBA average (Leq) | 59 dBA maximum |
| Open Race Cars   | 49 dBA average (Leq) | 58 dBA maximum |

#### Golf Course

|                  |                      |                |
|------------------|----------------------|----------------|
| Street Cars      | 37 dBA average (Leq) | 45 dBA maximum |
| Closed Race Cars | 50 dBA average (Leq) | 60 dBA maximum |
| Open Race Cars   | 50 dBA average (Leq) | 59 dBA maximum |

#### Dairy Farm

|                  |                      |                |
|------------------|----------------------|----------------|
| Street Cars      | 40 dBA average (Leq) | 48 dBA maximum |
| Closed Race Cars | 53 dBA average (Leq) | 63 dBA maximum |
| Open Race Cars   | 53 dBA average (Leq) | 62 dBA maximum |

The above calculations are based on direct line-of-sight, worst-case conditions without any reduction for ground attenuation or for any type of barrier/berm. The landfill to the east of the site has dirt berms/hills that appear to be as high as 45'. This could provide substantial noise reduction for the golf course and properties to the east.

Even without any ground or barrier attenuation, the potential noise impact complies with the noise average and maximum noise level limits for all cases.

#### Ambient Noise Levels

In addition to the noise impact from SR 238, this area is impacted by a high level of railroad activity.

*"On an average day, about 40 freight trains pass through Maricopa, said Zoe Richmond, a spokeswoman for Union Pacific. That number is about to double. Union Pacific will begin work on a second track through Maricopa this year or in early 2009."*

<http://archive.azcentral.com/arizonarepublic/local/articles/2008/08/12/20080812quietzone0812.html#ixzz472obqtQV>

According to the US Department of Transportation, there is a daily average of 20 trains (between 6am – 6pm) and 20 trains (between 6pm – 6am) at this section of the track.

Train whistle noise is typically 110 dBA at 100'. This is louder to "clearly" louder than the maximum baseline race car measurements at 100'.

#### **CONCLUSIONS:**

- Even without any ground or barrier attenuation, the potential noise impact to the all properties examined are below the residential noise level limits set by the City Code.
- The projected maximum race noise is noticeably quieter than the existing train noise.

Please let me know if you have any questions or need additional information.

Respectfully,



Tony Sola  
Acoustical Consulting Services