

RE: Orton Park Festival

I feel the Parks Staff recommendations for sound levels for the 2013 Orton Park Festival are inadequate for the following reasons:

The Parks Staff recommendations for sound levels for the 2013 Orton Park Festival state the following:

"Sound levels will be monitored at various places around Orton park, particularly at nearby homes, during Orton Park Festival. 110 dB is the maximum amplification level for music and sound. If readings are above this level, and the organizers are informed, they must take action to reduce the dB level to the agreed maximum or lower."

The 110 dB maximum amplification requirement is meaningless without stating a distance from the sound source (the speakers) at which the 110 dB limit enforced. For instance, at the 2012 Orton Park Festival Parks staff recorded a decibel reading of 79 dB at a point "about 100 feet from the front of the stage" at 9:28 PM on August 25, 2012.

Using the following online sound level calculator---

<http://www.sengpielaudio.com/calculator-distance.htm>

A reading of 79 dB at a distance of 100 feet from a sound source would calculate out to a sound pressure level of 109 dB at a distance of 3 feet from the sound source (approximately the front of the stage). Therefore at the time the 79 dB reading was taken everyone located within 30 feet of the front of the stage would have been exposed to decibel levels in excess of 90 dB with those at the very front of the stage getting the full 109 dB. In this example someone 15 feet from the front of the stage would be hearing the music at about 96 dB. From the guidelines below an exposure of 94 dB for more than 1 hour can cause hearing impairment.

Permissible Exposure Time Guidelines – Sound Pressure Level - SPL

How long can a person endure a certain noise level before hearing impairment occurs?

Sound Pressure Level	Sound pressure	Permissible Exposure Time
115 dB	11.2 Pa	0.46875 minutes (~30 sec)
112 dB	7.96 Pa	0.9375 minutes (~1 min)
109 dB	5.64 Pa	1.875 minutes (< 2 min)
106 dB	3.99 Pa	3.75 minutes (< 4 min)
103 dB	2.83 Pa	7.5 minutes
100 dB	2.00 Pa	15 minutes
97 dB	1.42 Pa	30 minutes
94 dB	1.00 Pa	1 hour
91 dB	0.71 Pa	2 hours
88 dB	0.50 Pa	4 hours
85 dB	0.36 Pa	8 hours
82 dB	0.25 Pa	16 hours

Accepted guidelines for recommended permissible exposure time for continuous time weighted average noise, according to **NIOSH-AINSI** and CDC.

For every 3 dB sound pressure level (SPL) over 85 dB, the permissible exposure time is cut in half – before damage to our hearing can occur.

NIOSH = National Institute for Occupational Safety and Health and

CDC = Centers for Disease Control and Prevention.

OSHA = Occupational Safety and Health Administration.

Source = <http://www.sengpielaudio.com/TableOfSoundPressureLevels.htm>

The City of Madison has a responsibility to protect the health, safety and welfare of its residents. The Orton Park Festival is a free festival open to the public. Many who come to this event bring their young children. The area directly in front of the stage is popular for dancing and many people including children spend considerable time in this area when their popular band is playing.

I feel that the Board of Park Commissioners should better define and limit the amplification allowed during the Orton Park Festival and at all other events allowing amplification in all city parks in the future.

If a maximum allowable amplification limit is imposed on the event, then this dB limit must have a specified distance requirement (from the sound source) attached to it. For instance, if the allowed maximum amplification level is to be 110 dB then a distance from the sound source must be stated for which readings above 110 dB will not be allowed. Furthermore, for example, if no more than 110 dB is to be allowed at a distance of 3 feet from the sound source then no more than 90 dB can be allowed at a distance of 30 feet from the sound source. A park ranger who records a reading of 83 dB 300 feet away from the stage should realize that this means that a reading that would have been taken at the same time 10 feet from the stage would have been about 112 dB.

Also, event organizers must be required to post readily readable information signs in the area in front of the stage stating the maximum allowed amplification limits of the event. This posted information should also provide data on permissible exposure time guidelines and the relationship between sound pressure levels and the distance from the sound source. This will allow people attending the event to be informed of the relationship between sound pressure levels and the potential for hearing impairment. This will enable people to more wisely choose how much time they spent close to the area in front of the sound stage.

I would also like to add that sound level meter apps for smart phones are often highly inaccurate at sound pressure levels over 90 dB. Parks personnel and others taking official readings of sound levels should be required to use approved and calibrated noise metering equipment to monitor sound levels at outdoor events in City Parks. Each official sound pressure level measurement must be accompanied with the exact location and time that the sound pressure reading was taken.

Sincerely,

Ron Shutvet