

Town of Oriental – Board of Commissioners Special Meeting
February 6, 2009

The Oriental Town Board of Commissioners met on Friday, February 6 at 2:00 pm at the Oriental Town Hall.

Present were: Mayor Sage and Commissioners Bohmert, Cox, Kellam, Inger and Styron
Professor Robert Nagel of NCSU
17 members of the public

Mayor Sage opened the meeting by introducing Dr. Nagel from NCSU who came to educate the board, and public, about noise and decibel meters.

Dr. Nagel started his talk by explaining how the decibel meter works and by showing us how it is calibrated. (The town's meter was set properly.) He recommended that we have our meter calibrated every 6 months or before each use and that the calibrator be battery operated. And when taking measurements at different times, always take them from the exact same spots.

He explained that sound is measured with 3 scales; A, B and C. The A scale most closely approximates the average sound frequencies as perceived by the human ear. The B scale is seldom used. The C scale is best to measure low (bass) frequencies, which are often responsible for most noise issues as related to amplified music. Most town ordinances use the A scale to measure decibel levels.

Sound travels in waves, like rolling hills, and each frequency travels with a certain wavelength. High frequency waves have shorter wavelengths and dissipate more quickly than low frequency waves which have longer wavelengths. When a sound source is surrounded by reflective surfaces, such as water, concrete or buildings with balconies or porches, sound can seem louder far away than it does up close. This explains why, in a row of houses near the sound source, house A cannot hear the noise but house B can. Low frequency wavelengths can actually turn a corner.

Acoustics, or noise, is talked about in terms of either pressure, or power, generated. The range that the human ear can hear is so large that if you take a whisper and multiply it by 100 that noise is still comfortable to hear. Multiply that again by 100 and it will still be comfortable to the ear. The range is so broad that it is measured in decibels using a logarithmic scale.

If the power (noise) is reduced by half, the decibel reading would only decrease by 3 decibels and the human ear cannot tell the difference. This explains why, when the bands turn down the speakers after a complaint has been made, it is difficult to hear the difference (also, the bands apparently do not turn down their monitors).

Addressing the problem the town currently faces with outdoor music at the Tiki Bar, Dr. Nagel confirmed that with the addition of the new condo units and the restaurant, an amphitheater was created. At the present time, with the bands placed at the end of deck, the music is being directed to the condo balconies and being reflected back out towards the town dock. He suggested that moving the bands to another location on the deck might redirect some of the sound waves away from residential areas. However, he also stressed that modern speakers are designed to project sound waves radially so he wasn't sure that this would offer a solution for the Tiki Bar situation. By putting in barriers (dense wall buffers) the traveling noise levels would decrease but unfortunately it would take a massively dense wall to absorb the low frequency waves.

Another way to help with the problem would be for the complainants to use white noise machines in their homes.

Mr. Perry Cheatham, an acoustical sound engineer, spoke from the audience and stated that the lowest level a band can play and still be amplified is 80-85 db and that OSHA regulation has set the maximum for the health and safety of listeners at 90 db. He suggested that setting the db levels between 85 – 95db might be the compromise to please both sides. Another suggestion was to encourage bands to use headsets instead of monitors.

Another equation to the problem is known as psycho acoustics which relates to how the human ear perceives different sounds in different situations, even though the sounds may be of similar decibel levels. PNL (perceived noise level) is also a factor in that some sounds seem louder than they actually are.

Dr. Nagel took several questions from the public and town board. Mayor Sage then thanked Dr. Nagel.

There being no further business;

MOTION: Commissioner Bohmert made the motion to adjourn. Second by Commissioner Inger. Vote 5-0.

William Sage, Mayor

Heidi Artley, Interim Town Manager