

Noise Level Impacts as Related to Health and Safety Risks

People have widely varying reactions to noise. The key areas of concern to community in relation to noise pollution are as follows (enHealth 2004):

- ▶ Annoyance, reduced quality of life
- ▶ Sleep disturbance
- ▶ Performance and learning of school children
- ▶ Cardiovascular disease
- ▶ Mental health
- ▶ Neuro physiological stress

Annoyance

Annoyance is the most widespread subjective response to noise which include fear and anger. In relation to annoyance, the report found that 10-25% of an individual reaction to the noise was determined by the noise level (enHealth 2004). The remainder of an individual reaction was influenced by factors such as the individual perception regarding the level of control measures being taken by the noise producers, individual beliefs and individual expectations of good environmental conditions.

Community consultations and increase public awareness, especially the sensitive receptors on the level of noise to be created, its expected duration and what efforts are being made to mitigate its effect. Consistent scheduling for noisy work during a consistent time of the day time is also likely to prove helpful in reducing annoyance amongst sensitive receptors.

World Health Organisation 1999, has reported that noise levels below 50-55 dB(A)Leq 16 hr at outdoor locations and 35 dB(A)Leq 16 hr at indoor locations would not expect individual annoyance (enHealth 2004).

Sleep Disturbance

Sleep is essential part of the daily routine of an individual. The report (enHealth 2004) recommends that indoor sound pressure levels should not exceed 30 dB (A) indoors, in order to avoid negative effects on sleep for residents. The relevant legislation prescribes sound limits below this, and thus ensures this recommendation of the report has already been met, in adhering to them.

Performance and Learning of School Children

Whilst current studies link the chronic noise exposure at schools affects child health and performance, further studies are required to establish the noise threshold level for interventions. The report (enHealth 2004) published by Health Council focused primarily on studies done around international airports where ambient noise levels can be expected to be substantially higher than those expected at the Gladstone area. It can be assumed that current legislative restrictions on noise levels create a safe environment for both adults and children.

Cardiovascular Disease

The evidence on the effects of environmental noise on cardiovascular parameters is not yet conclusive. Studies have found a correlation between noise levels and cardiovascular disease identify 65-70 dB(A) for adults and ≥ 61 dB(A) for children to have high blood pressure. Since both of these thresholds are again above the legislative limits set by the Queensland

government, it is unlikely that excessive noise will be a cause for increased cardiovascular disease within the community or have negative impacts in health of children. Annoyance to noise levels has been linked with the cardiovascular conditions amongst adult. By reducing community annoyance with the noise at Gladstone area, GPC will be reducing risks of associated cardiovascular disease.

Mental Health

Mental health relates to emotions, thoughts and behaviours. A person with good mental health is generally able to handle day-to-day events and obstacles, work towards important goals, and function effectively in society. At present there has been no clear relationship between noise exposure and serious mental illness. However, certain people who are already stressed will be more sensitive to noise exposure.

Neuro physiological Stress

The normal stress response consists of a set of connected changes and feedback responses between the nervous and endocrine or hormonal system developed for evolutionary advantage to respond to threats. The evidence is that acute noise has an impact on psychophysiological arousal, but whether chronic noise exposure has an equivalent long-term effect is as yet unanswered.