

Noise and numbers

Despite what planners, and city Mayors, might think, a modest reduction in vehicle numbers will not reduce traffic noise. For a given traffic mix the vehicle noise decreases by only 3dB for halving the flow so that, to cut noise, you must be very tough on both the types of vehicles permitted in an area and on the number which are allowed in. If you are serious about reducing traffic noise, stop the heavies, cut down on the cars and lower the speed.

The claim that aircraft noise is reducing is correct for single aircraft, but the airport operators use this to increase flight numbers, whilst still keeping to an L_{Aeq} criterion. Operators shamelessly suggest that reducing the noise of all aircraft by 3dB will permit a doubling of movements, which will cancel the environmental benefit of noise reduction. Should they be permitted to do this?

Noise from people is more complex, but an approximation relating population density to noise, in locations away from main transport corridors, is*

$$L_{dn} = 10\log(\text{population density}) + 26 \text{ dB}$$

where L_{dn} is the day-night level and population density is in persons per square kilometre (p/km^2). Again there is the 3dB noise increase for doubling of numbers, which is an assumption of constant sound power output per person, but people are unreliable sound sources. When they are in very close proximity, the rise of background levels causes an escalating rise in source noise level.

Population densities of major cities vary greatly and are not known very accurately. Averaged over the whole city boundary, Paris has a population density of 20,000 p/km^2 , London has 4500 p/km^2 , Prague has 2500 p/km^2 , New York City has 10,000 p/km^2 , Manila has 41,000 p/km^2 . Of course, the density varies within cities. Taking Shanghai as an example, the outer suburbs have about 1000 p/km^2 , compared with 40,000 p/km^2 within the inner ring road, which is closely matched by the most populated area of Paris.

All countries do not mirror American cities of the 1970's, so that numbers is not the only determinant. Lifestyle is important: vehicle ownership, the time spent outdoors, children, communication customs (such as talking or shouting to each other) etc are all variables.

It's not easy to escape noise. To get away from it all, you have to live alone on a deserted island, where you can be contentedly enveloped in infrasound and other natural noises. Anybody know a good place to go?

*"Population distribution of the United States as a function of outdoor noise level" EPA Report 550/9-74-009 June 1974

PEOPLE AND MONEY MAKING GETTING IN EACH OTHERS WAY

Rooftop pea gravel installed in recent weeks at the Trocaderos Night Club in Minneapolis seems to have muffled the club's bass, according to North Loop residents. Police reported 20 police calls so far this year complaining of loud music coming from the club. City staff said they hope the new gravel, triple-pane windows and a decrease in volume will ease noise complaints in the neighbourhood. When asked about the noise-reduction measures, Trocaderos owner Shane Segal said they have already been accomplished. He said this is a private issue between the club and the city of Minneapolis. The city held an administrative hearing recently for Trocaderos when the club owner appealed three noise violations. The violations included a \$100 fine issued at 12:08 a.m. Monday, Apr. 17; a \$200 fine issued at 12:17 a.m. Friday, May 19; and a \$400 fine issued at 11:18 p.m. Friday, May 26. City staff sought a \$1,066 fine to recover police and staff time spent addressing the issue. The administrative judge upheld the fine in the June 6 hearing, and the fine is reportedly paid. Under city code, live or recorded music is not allowed to "emanate beyond the confines of the premises so that it disturbs the peace and quiet of the residents of any dwelling unit." "Try to turn it down as it gets later," said Lt. Mike Kjos at a 1st Precinct meeting with bar owners in May. "There are already a lot of issues so far with residents buying high-buck condos; and when they complain, we have to take action." Police said they must enter a residence and personally determine the bass to be a violation before they will issue a citation. Complaints came from next-door neighbours at Rock Island Lofts and 212 Lofts, who said they could feel the bass vibrate in their homes. The seven-story, 63-unit Rock Island Lofts opened in 2004 when there were no nightclubs in the area, until Trocaderos came on the scene in November 2005. Thirty-three out of 55 total units remain for sale at the 212 Lofts. While residents said noise from the neighbouring parking lot is still an issue they need to tackle, the gravel seems to have deadened the bass vibrations.

WHATEVER WORKS – BECAUSE ASKING NICELY DOESN'T

A Hampton family that has allegedly lost sleep due to construction at a neighbouring school has sued the Winnacunnet Cooperative School District (New York State) to try to stop the racket. James Sweeney and Kathleen Ligus filed a lawsuit asking the Rockingham County Superior Court to order the school district and its administrative unit to stop construction work and emptying trash bins during late night and early morning hours. Sweeney, Ligus and their two children, whose home is 25 feet away from Winnacunnet High School, have "lost substantial amounts of sleep," and suffered emotional distress, irritability, difficulty concentrating and stress due to noises emanating from the school over the past two years, according to court papers. The papers filed on behalf of Sweeney and Ligus state that before construction at the school began in August 2004, the couple was told work would be performed between 7 a.m. and 4 p.m., and that resulting noises would be toned down. Noises, allegedly from construction and emptying school trash bins during evening and early morning hours, have awakened the family repeatedly, according to court papers. The family has also alleged that school workers have made disruptive noises by starting lawn mowers near their property. According to court papers, Sweeney and Ligus have complained to the SAU superintendent, the Winnacunnet High School principal, the school board, the town of Hampton and the Hampton police, all to no avail. The suit asks for the school to halt construction and moving equipment between 7 p.m. and 8 a.m., move trash bins away from the couple's property, and to provide sound mitigation, according to the papers. It also asks for an unspecified amount of money in damages for the couple.