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## Singapore

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### Wanted: Sound ideas to cut traffic noise

NEA study to focus on residential buildings near roads and rail lines

By Goh Chin Lian

storey carparks or parks are placed between roads and residential buildings to screen out noise.

**2** A buffer distance of at least 30m is set between buildings and expressways; at least 35m for homes facing an MRT track.

**3** Trees are planted to shield homes for psychological relief. Trees attract birds, whose songs mask traffic noise.

**4** Roads are surfaced with porous asphalt that absorbs vehicle noise.

**5** Caps on noise emissions by new vehicles were lowered last month. Existing vehicles face a stricter regime from April 1 next year.

**6** Vehicles with illegally modified exhaust systems are clamped down on.



Mr Naidu in his bedroom overlooking TPE. The noise from motorbikes with modified exhausts racing along TPE in the wee hours keeps him awake at night. -- ST PHOTO: NURIA LING

THE authorities are taking a fresh look at reducing traffic noise from expressways, major roads, the MRT and LRT, as more vehicles take to the road and the frequency of train services increases.

Of concern is the impact of prolonged exposure to noise on people living near these thoroughfares, which experts say is linked to sleep disturbance, bad temper and heart disease.

The National Environment Agency (NEA) plans to hire a consultant in three months' time to look into reducing noise from existing and future major roads and rail lines.

Noise along these stretches can exceed 60 decibels, the equivalent of noise in a supermarket. Sleep is found to be significantly disrupted when background noise is 55 decibels or more.

The NEA hopes to study noise barriers and other steps used by cities in developed countries. Past studies here and abroad have yielded few workable solutions for a land-scarce, high-rise city like Singapore.

The authorities had previously explored the idea of noise barriers, such as a wall built in 1994 to shield the 12-storey Block 173 in Toa Payoh Lorong 1 from a slip road of the Pan-Island Expressway. But they were ineffective in reducing noise levels at the upper floors of high-rise buildings.

Conventional thinking among experts is that walls have to be 10m high and 1m wide to shave off just 5 decibels for a 15-storey block of flats.

Such barriers would take up too much land here, cost a lot to build and maintain, and be an eyesore. Where barriers have gaps for traffic to enter and exit an expressway, noise seeps through.

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The NEA's targets are ambitious. It wants the recommended measures to be cost-effective, easy to maintain and reduce noise by at least 5 to 15 decibels for residential buildings of at least 12 storeys.

The study, which should take at least eight months, will focus on residential buildings fronting all nine expressways, 10 major arterial roads and above-ground MRT and LRT stations and tracks.

It could take a leaf out of the books of cities such as Australia's Melbourne, which built a 500m wall along a freeway partly with solar panels. These panels save on concrete, deflect noise and power street lights and closed-circuit TV cameras.

Associate Professor Lynne Lim, director of the Centre for Hearing Intervention and Language Development at the National University Hospital, noted that loud traffic noise can reach 80 to 85 decibels. A constant noise level of 65 decibels has been associated with increased risks of hypertension and heart disease, and 40 decibels with reduced concentration.

Associate Professor Low Wong Kein, director of the Centre for Hearing and Ear Implants at the Singapore General Hospital, said the link between traffic noise and heart disease is indirect.

He said: 'The irritating noise disturbs sleep, blood pressure is affected and stress level goes up. That indirectly has some effects on blood vessels and possibly results in a heart attack.'

The past two years have been a nightmare for the Naidu family, after they moved into a 15th-storey HDB five-room flat in Punggol facing the Tampines Expressway (TPE).

Mrs Vijaya Naidu, 29, often wakes three times at night because motorcycles with modified exhausts race along the expressway in the early hours. This is on top of noise from a rising number of lorries, motorcycles and cars on the highway.

The housewife, who goes to bed at 10.30pm, said: 'I can't sleep deeply. I am woken up at 1.30am, 3.30am and 6.30am, and I take more than half an hour to fall asleep again each time.'

Her neighbours in Block 117, Edgefield Plains hear the din too, but they told The Straits Times that they cope by closing all the windows and switching on the air-conditioning.

Mrs Naidu and her two children, aged five and two, sometimes do the same, but end up with runny noses. Her husband, Mr Parupalli Venkata Surya Raghava Naidu, 36, said that every few days, he moves into an air-conditioned room by himself, while his wife and children sleep with the windows open. The interrupted sleep has taken a toll on Mrs Naidu's health. She developed headaches and a sensitive nose, for which she has to use an inhaler when it acts up.

Mr Naidu, a Singapore permanent resident from India who has lived here for 10 years, wrote to the authorities in August asking them to reduce the noise or clamp down on illegally modified motorcycles, but was told nothing much could be done.



His block is almost 60m from the TPE, or double the minimum 30m required for buildings near expressways, the HDB said.

A multi-storey carpark separates Mr Naidu's block from the TPE, but he felt it screened noise only up to the seventh floor.

The IT network manager admits he underestimated the traffic noise when he bought the resale flat in October 2008. He viewed the flat on only one Sunday afternoon before he bought it.

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