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DEVELOPMENT OF PRIORITY RANKING SYSTEM

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5.1. Ranking based on Population Exposure

5.1.1. In order to optimise the utilisation of resources available and to implement the recommended mitigation schemes for the identified road sections in a manageable and efficient manner, it is necessary that the works should be prioritised. One possible ranking system is to prioritise the works in terms of the population exposure which may be defined as:

(a) Population Exposure = $\sum$ (dB Exceedance of 70 dB(A) x No. of Dwellings), or

(b) Population Exposure = Total no. of dwellings where noise level exceed 70 dB(A)

Higher priority is given to the mitigation scheme which aims to protect more dwellings affected by road traffic noise according to definition (b) or to protect more dwellings adversely affected by road traffic noise according to definition (a).

The method described in (a) would provide a more rational result, as the top prioritised mitigation schemes would tend to protect more population and sites to achieve a higher reduction.

5.2. Ranking based on Cost-effectiveness

5.2.1. Alternatively, the recommended mitigation schemes for the identified road sections may be ranked in terms of cost-effectiveness of the schemes. Higher priority is given to the scheme with lower cost of construction per dwelling protected. In this assessment, the cost of construction should include all direct and indirect costs, i.e.

(a) costs of construction,

(b) costs for diversion of any affected utilities and services, road signs, and other street level furniture, and

(c) costs for land resumption

(d) costs of maintenance which is assumed to be a percentage of the capital cost.

The total number of dwellings protected by each scheme should include those where there would be at least a one dB(A) reduction of noise level as a result of implementing the scheme.

5.3. Recommended Ranking System

5.3.1. The first ranking system, i.e. based on population exposure, prioritises the mitigation schemes according to the severity and extent of the noise problem. Both noise levels and the number of dwellings being exposed to the noise are duly considered in such prioritisation. From the prospective of the District Boards and the public at large, this system is a more logical choice. From a technical prospective, it is also a right choice.

5.3.2. As an example, the programme for 'Noise Abatement in Schools' being implemented by the Education Department adopts this system to prioritise the noise insulation works for various schools being exposed to aircraft noise and road traffic noise. However, this system does not consider the cost effectiveness factor, and one may argue whether the money is well spent on a mitigation scheme although the scheme must be acoustically effective according to Section 3.8.

5.3.3. On the other hand, the second ranking system prioritises the mitigation scheme according to the cost of construction per dwelling protected. For a given funding arrangement, the above system has an obvious advantage because more dwellings would be protected and benefited by the mitigation schemes. However, this system ignores the severity of the problem and therefore may not address the concerns of those who are adversely affected by the road traffic noise. It may also give a wrong impression to the public that government is only concerned about the money in implementing the schemes.

5.3.4. The ultimate objective of the retroactive noise mitigation measures is to reduce the adverse effects of noise impacts due to traffic on existing roads. In due consideration of the pros and cons of the two systems, it is recommended that the first ranking system should be adopted.