Study on Road Surface Noise of Asphalt Pavements

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Abstract

Traffic noise is an environmental and social problem in both urban and rual area transportation development. Meanwhile focussing on the sustainable development in transport sector, noise reduction measures play an major role. So far in the Sri Lankan context, noise reduction measures has not been considered rather than noise path control. In the near future in Sri Lanka, expansion of highways in urban area will cater for traffic conjestion reduction but may lead to social and environmental problems due to traffic noise. Since traffic noise lead to imbalance mind state of humans causing annoyance, difficulty to read and speach communication: there may be huge public objection for the incoming transport development projects.

Traffic noise consists of four parts such as engine noise, exhaust noise, aerodynamic noise and tire/pavement interaction noise. Comparatevely, tire pavement interaction noise play a major role in higher speeds greater than 50km/h. As in major highways vehicle operating speed and during night time vehicle speed is more than 50km/h. Therefore, it is more valuable to study tire pavement interaction noise which may help to adopt noise control measures. Traffic noise will be measured in cloxe proximity method (CPM) for various pavement conditions. ISO standards will be used as guidance for both test methods. CPM method will be used to measure traffic noise due to tyre pavemant interaction against pavement conditions. Pavement conditions will be evaluated by pavement texture, type of mixture and age of pavement. Ambient temperature and humudity will be also recorded during test period.

Traffic noise data collected will be analysed against pavement condition to derive best construction practices to control source traffic noise due to tyre pavement interaction and cost benefit of those construction methods against area land use pattern. The projected conclusion of this reasearch is to demarcate relationship between tyre pavement texture, type of mixture, pavement age and to recommend suitable measures for noise control by considering cost benefit.

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