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Panel on Environmental Affairs

Meeting on 28 April 2008

**Background brief on
measures to address noise impact on existing roads**

Existing policies

Under the existing policy, when planning new roads, the relevant department or developer has to ensure that traffic noise will stay below the statutory noise limit of 70 dB(A)L(10)(1 hour)^{note} (noise limit) in the Hong Kong Planning Standards and Guidelines. If it is envisaged that traffic noise generated will exceed the noise limit, practicable direct measures such as adjusting the alignment and erecting barriers should be adopted to reduce the impact on residents in the neighbourhood. Where direct measures are inadequate, indirect technical remedies in the form of good quality window and air-conditioning should be provided to the affected residents.

2. The direct and indirect measures are however not applicable to existing roads that have been constructed before the current policy on new roads took effect. To this end, the Administration has put in place the following arrangements to address the noise impact of existing roads on neighbouring residents -

- (a) engineering solutions, by way of retrofitting of barriers and enclosures, and resurfacing with low noise material, should be implemented where practicable at existing excessively noisy roads; and
- (b) traffic management solutions, such as speed control, traffic diversion and restricting use by heavy vehicles, should be fully explored and implemented where practicable on a case by case basis at roads where engineering solutions are impracticable or where engineering solutions alone are inadequate in reducing the noise to an acceptable level.

^{note} L10 (1 hour) is the noise level exceeded for 10% of an one-hour period, generally used for road noise at peak traffic flow.

Mitigating measures

Provision of noise barriers

3. In considering the provision of noise barriers at existing road sections/flyovers, the Administration would have regard to the technical feasibility of the new structures to ensure that –

- (a) the new structures will not obstruct emergency access or fire fighting;
- (b) the new structures will not undermine road safety or impede pedestrian and vehicular movements;
- (c) the new structures will not interfere with commercial activities or cause social disruptions; and
- (d) there will be adequate space and structural capability (applicable to flyovers) for supporting the barrier/enclosure.

So far, the Administration has identified 36 existing road sections (including six flyovers) for which preliminary investigations have shown that retrofitting works are technically feasible. The total indicative cost is about \$2,400 million and it is expected that 26 000 dwellings will benefit from the retrofit programme with majority experiencing reduction in noise below the noise limit.

Low noise material resurfacing

4. It is now a standard practice to pave high-speed roads/flyovers with a speed limit at 70 km/hour or above with low noise surfacing material. The porous friction course of the material helps reduce the road/tyre interaction noise on high speed and low speed roads by up to 5 and 3 dB(A)L(10)(1 hour) respectively. However, application of frequent start-stop movements and a high percentage of heavy vehicles will cause rapid wear and tear, resulting in an uneven road surface and the need for frequent resurfacing. This will result in higher maintenance costs, more traffic disruption and inconvenience to drivers, pedestrians and shop operators. Hence, it is necessary to select suitable road sections for surfacing with such material.

5. The Administration has identified 72 existing local road sections for further feasibility studies on their suitability to be resurfaced with low noise surfacing material. By February 2006, the resurfacing works for 25 local road sections have been completed. Subject to the availability of resources, the road resurfacing programme is scheduled for completion by 2010. The whole resurfacing programme will benefit about 40 000 dwellings and cost about \$80 million.

Traffic management scheme

6. Banning certain vehicles, such as heavy vehicles, from entering an area or running on a particular road either the whole day or at night could bring substantial noise benefit. However, such schemes could only be devised when alternative routes are available and the noise nuisance would not be transferred to residents along the diverted routes.

7. To study the feasibility of the night-time traffic management scheme, the Administration has proposed in early 2002 to put on trial a number of traffic management measures –

- (a) full closure of East Kowloon Corridor;
- (b) full closure of Kwai Chung Road Flyover outside Kwai Fong Estate;
- (c) full closure of Texaco Road Flyover in Tsuen Wan;
- (d) banning of goods vehicles over 5.5 tonnes along Po Lam Road between Kowloon and Tseung Kwan O; and
- (e) banning of goods vehicles over 5.5 tonnes along Ngan Shing Street.

Pedestrianization

8. Pedestrianization can enhance road safety for pedestrians and improve the overall environment for pedestrians. While traffic noise at the pedestrianized street may be reduced during the pedestrianized period, there may be increase in traffic noise at its surrounding roads due to traffic diversion.

Deliberations by Panels

9. The Panel on Environmental Affairs (EA Panel) and the Panel on Transport have all along been concerned about the noise impact of existing roads on neighbourhood and have held a number of joint meetings to discuss the measures to address the problem. Members generally feel that in planning the development for new towns, consideration should be given to aligning the trunk roads at the outskirts of the towns to obviate the need for heavy vehicles to travel through the towns. Flexibility should also be allowed for expansion to cater for possible increase in traffic flow. To minimize the noise problem suffered by residents, improvement to land use planning should be made. Consideration may be given to providing incentives, such as bonus plot ratio, to encourage the adoption of noise insulation measures by private developers for developments close to noisy roads. To mitigate the impact of excessive traffic noise from existing roads on residents nearby, efforts should be made to expedite the implementation of the noise barrier retrofitting/road resurfacing programmes and to take advantage of synchronizing the retrofitting projects and

nearby planned major road projects. A proper balance between achieving cost-effectiveness of erecting noise barriers and protecting the interest of the minority neighbourhood against excessive traffic noise should be maintained. There is also a need for the Administration to examine the design and choice of materials for noise barriers, in particular their visual impact, to ensure public acceptance.

10. Apart from expediting the retrofitting and resurfacing programme, consideration should also be given to -

- (a) installing double-glazed windows and air-conditioning for the affected residents taking into account the financial implications;
- (b) constructing highways using in situ construction instead of pre-cast components to reduce the number of expansion joints and using new noise-absorbing surfacing materials to fill the uneven joints so as to reduce wheel-passing noise;
- (c) providing financial assistance to the transport trade to improve the design of the latching mechanism of container vehicles which is believed to create loud bangs when passing expansion joints;
- (d) stepping up enforcement against sounding of horns in silent zones, speeding, converting of motor vehicles to high-speed vehicles and car racing to reduce traffic noise;
- (e) re-considering the propriety of the current noise limit as a criterion for planning of improvement works to existing roads; and
- (f) planting trees as an alternative to noise barriers.

11. On 21 October 2002, the Panels conducted a joint site visit to ascertain the noise impact caused by different types of vehicles to the affected dwellings along Texaco Road Flyover during the night-time restriction hours. Members noted that the transport trades generally did not consider the proposed measures a real solution to the problem because the traffic noise at the concerned flyovers/road sections was simply diverted to other areas along the alternative routes. Besides, the proposals would seriously hamper the operation of the transport trades and in turn affect the livelihood of drivers. On the other hand, the local District Councils had expressed support to the proposals and urged the Administration to speed up the trial schemes so as to ascertain their feasibility and effectiveness. Subsequently, the Administration had deferred the proposed scheme at East Kowloon Corridor, given the substantial noise impact on the dwellings along the diverted routes, until the relevant departments were able to devise a scheme that could satisfactorily alleviate the noise impact on those dwellings. The Administration had also decided not to pursue with the proposed scheme at Texaco Flyover as well as Po Lam Road between Kowloon and Tseung Kwan O in the light of strong objection.

A draft comprehensive plan to tackle road traffic noise in Hong Kong

12. In April 2006, the Administration published a draft comprehensive plan to tackle road traffic noise in Hong Kong setting out the enhanced measures to tackle the road traffic noise problem. These include –

- (a) extending the trial of low noise road surfacing materials;
- (b) exploring new design of low noise road surfacing materials for wider application;
- (c) exploring optimum barrier design for wider application;
- (d) feasibility study of controlling noise emission from in-use vehicles;
- (e) review of the Professional Practice Note on Road Traffic Noise;
- (f) promoting the disclosure of noise information in the sales brochure;
- (g) improving joints at flyovers
- (h) night-time traffic noise standard; and
- (i) public engagement and partnership.

13. The EA Panel held a meeting on 3 July 2006 to discuss the draft plan. In this connection, the Research and Library Services Division of the Secretariat had also prepared a research report on mitigation measures against road traffic noise in selected places for discussion at the meeting.

Noise limit

14. According to the Administration, the road traffic noise limit of 70 dB(A)L(10)(1 hour) was set with reference to the standards which were adopted in the United Kingdom and USA. These standards were internationally recognized and acceptable in terms of reflecting noise nuisance. Members however pointed out that such standards might not be applicable to Hong Kong given its dense population and rapid development. The public would be very disappointed if the international standard was adopted without making reference to the unique situation of Hong Kong.

Provision of noise barriers

15. Members were disappointed that of the 36 road sections identified for installation of noise barriers in 2000, only two had been completed and 18 were scheduled for commission in 2007 while the rest were still under consideration.

They stressed the need for the Administration to work out the optimum design for noise barriers to prevent recurrence of the controversy over the noise barriers along the Tolo Highway.

Improving road joints at flyovers

16. As vehicles passing road joints and manholes would cause a lot of noise, members considered that more efforts should be made to improve the design of new road bridges by reducing the number of joints. They were also pleased to note that the Administration had engaged the City University to conduct studies on the current practice/specification on road joints with a view to further improving the design.

Illegal tempering of vehicles

17. Given that the noise nuisance associated with tampered vehicles was particularly disturbing at night, members pointed out the need to impose control against these vehicles. There was also a need for more effective measures to protect the public from exposure to excessive night traffic noise generated by public transport system, such as railways and trains.

Land use planning

18. Judging from spatial distribution of traffic noise problem in Hong Kong as set out in Appendix 4 to the draft plan, members noted with concern that most of the districts were affected by high road traffic noise levels. To tackle the problem at source, proper land use and development planning were necessary as otherwise high health cost would be incurred. The planning guidelines should be tightened to ensure that residential developments would not be exposed to road traffic noise exceeding the prescribed noise limits. Consideration should be given to rejecting proposals of residential developments on sites where the surrounding traffic noise levels had already exceeded noise limits. In the event that a residential development was allowed to proceed despite the high noise level, the developer concerned should be held responsible for the provision of noise abatement measures.

Disclosure of noise information in sales brochure

19. Members were disappointed that the requirement for disclosure of noise information in sales brochures of residential properties was not mandatory. Since the exposure to road traffic noise could be minimized through improvements in design, choice of materials and orientation of residential developments, developers should be held responsible for implementing mitigating measures to protect the residents from excessive road traffic noise. To enable prospective buyers to make an informed decision on their purchase, developers should be required to disclose in the sales brochures the levels of noise which the properties were exposed to, in particular when the noise levels had exceeded the limits.

Traffic management schemes

20. Other than noise abatement measures, some members considered that a more effective means was to implement traffic management schemes to restrict heavy vehicles from entering residential developments at night-time and divert them to other routes if such diversions would not result in transferring the noise nuisance to residents along the diverted routes. As these schemes could be timely implemented as compared to the provision of noise barriers which would take a long and tedious construction process, District Councils should hold meetings with the relevant departments to discuss the feasibility of applying night-time traffic management schemes in noise sensitive areas within their districts. Other members however pointed out that there were difficulties in imposing traffic management schemes given the high development density in Hong Kong. Besides, heavy vehicles were not the only culprits, other vehicles, such as motorcycles, also contributed to the noise problem. It was therefore not fair to put the blame on heavy vehicles, particularly under the circumstances where residential developments were built next to the already existing roads frequented by vehicles. Before implementing any traffic management schemes, adequate consultation with the transport trades was necessary to minimize the impact on their operation. Diverted routes should be identified provided that the diversion would not result in transferring the noise problem to other areas. Incentives should also be considered to encourage drivers to use the diverted routes.

Relevant papers

Information paper provided by the Administration for the joint meeting of the EA, Transport and Planning, Lands and Works Panels on 15 January 2002

<http://www.legco.gov.hk/yr01-02/english/panels/ea/papers/eaplwtp0115cb1-770-2e.pdf>

Minutes of the joint meeting of the EA, Transport and Planning, Lands and Works Panels on 15 January 2002

<http://www.legco.gov.hk/yr01-02/english/panels/ea/minutes/ej020115s.pdf>

Information paper provided by the Administration for the joint meeting of the EA and Transport Panels on 18 June 2002

<http://www.legco.gov.hk/yr01-02/english/panels/ea/papers/eatp0618cb1-1807-1e.pdf>

Minutes of the joint meeting of the EA and Transport Panels on 18 June 2002

<http://www.legco.gov.hk/yr01-02/english/panels/ea/minutes/ej020618.pdf>

Information paper provided by the Administration for the joint meeting of the EA and Transport Panels on 19 July 2002

<http://www.legco.gov.hk/yr01-02/english/panels/ea/papers/eatp0719cb1-2290-3e.pdf>

Minutes of the joint meeting of the EA and Transport Panels on 19 July 2002

<http://www.legco.gov.hk/yr01-02/english/panels/ea/minutes/ea020719j.pdf>

Information paper provided by the Administration for the joint meeting of the EA and Transport Panels on 23 January 2003

<http://www.legco.gov.hk/yr02-03/english/panels/ea/papers/eatp0123cb1-755-1e.pdf>

Minutes of the joint meeting of the EA and Transport Panels on 23 January 2003

<http://www.legco.gov.hk/yr02-03/english/panels/ea/minutes/eatp0123.pdf>

Information paper provided by the Administration for the joint meeting of the EA and Transport Panels on 24 February 2003

<http://www.legco.gov.hk/yr02-03/english/panels/ea/papers/eatp0224cb1-957-1-e.pdf>

Minutes of the joint meeting of the EA and Transport Panels on 24 February 2003

<http://www.legco.gov.hk/yr02-03/english/panels/ea/minutes/eatp0224.pdf>

Information paper provided by the Administration for the EA Panel meeting on 24 January 2005

<http://www.legco.gov.hk/yr04-05/english/panels/ea/papers/ea0124cb1-486-1-e.pdf>

Minutes of the EA Panel meeting on 24 January 2005

<http://www.legco.gov.hk/yr04-05/english/panels/ea/minutes/ea050124.pdf>

Information paper provided by the Administration for the EA Panel meeting on 3 July 2006

<http://www.legco.gov.hk/yr05-06/english/panels/ea/papers/ea0703cb1-1739-11-e.pdf>

Research Report entitled "Mitigation Measures against Road Traffic Noise in Selected Places" prepared by the Research and Library Services Division

<http://www.legco.gov.hk/yr05-06/english/sec/library/0506rp04e.pdf>

Supplementary information on mitigation measures against road traffic noise in selected places prepared by the Research and Library Services Division

<http://www.legco.gov.hk/yr05-06/english/sec/library/0506in33e.pdf>

Minutes of the EA Panel meeting on 3 July 2006

<http://www.legco.gov.hk/yr05-06/english/panels/ea/minutes/ea060703.pdf>

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