For Discussion

on 24 February 2003

LEGISLATVE COUNCIL

PANEL ON ENVIRONMENTAL AFFAIRS
PANEL ON TRANSPORT

Progress of Measures to Address Noise Impact of Existing Roads

PURPOSE

This paper updates Members on the progress of the noise mitigation measures at existing roads.

TRAFFIC MANAGEMENT SCHEME

2. At the meeting of the Joint Panels on Environmental Affairs and Transport on 19 July 2002, we suggested deferring the implementation of the traffic management scheme for East Kowloon Corridor in view of the anticipated substantial noise impact on the dwellings along the routes to which the traffic would likely be diverted. As regards the Kwai Chung Road Flyover outside Kwai Fong Estate, the Texaco Road Flyover in Tsuen Wan and Ngan Shing Street in Shatin, we suggested that traffic management schemes should be introduced. Members requested the Administration to provide further information on sporadic traffic noise as at present at the Kwai Chung Road Flyover, the Texaco Road Flyover and Ngan Shing Street during the suggested traffic restriction hours ("the restriction hours"). It was also agreed that Members of the two Panels

would conduct a site visit to the Texaco Road Flyover to find out the noise impact of different types of vehicles on the affected dwellings during the restriction hours.

Sporadic Noise Levels

3. The Administration has measured the sporadic traffic noise along the Kwai Chung Road Flyover, the Texaco Road Flyover and Ngan Shing Street.

(a) Kwai Chung Road Flyover

4. Our suggestion at the last meeting was to ban all traffic from this flyover during the restriction hours. According to our measurements, the general traffic noise level during the restriction hours was 62-65 dB(A) L_{10} (1 hour). About 120 to 210 vehicles passed through this flyover hourly during the restriction hours. Noise measurements taken at Kwai Fong Estate adjacent to this flyover indicated that the typical noise caused by an individual vehicle ranged from 68-70 dB(A) for passenger cars and taxis, 70-74 dB(A) for motorcycles and 73-76 dB(A) for medium/heavy goods vehicles and buses. When there were a number of vehicles of the same or different types passing closely together, the noise was generally about 1 to a few dB(A) higher. Details of the noise measurement results are at Annex A.

(b) Texaco Road Flyover

5. Our suggestion at the last meeting was to ban all traffic from this flyover during the restriction hours. According to our measurements, the

general traffic noise level during the restriction hours was 67-73 dB(A) L_{10} (1 hour). About 200 to 320 vehicles passed through this flyover hourly during the restriction hours. Noise measurements at East Asia Gardens adjacent to this flyover indicated that the typical noise caused by an individual vehicle ranged from 72-74 dB(A) for passenger cars and taxis, 74-78 dB(A) for motorcycles and 80-81 dB(A) for medium/heavy goods vehicles and buses. Similarly, when there were a number of vehicles of the same or different types passing closely together, the noise was generally about 1 to a few dB(A) higher. Details of the noise measurement results are at Annex B.

(c) Ngan Shing Street in Shatin

6. Our suggestion at the last meeting was to ban only goods vehicles over 5.5 tonnes from this road during the restriction hours so that residents can continue to make use of the bus stops along this road and to access the adjoining residential developments by vehicles. According to our measurements, the general traffic noise level during the restriction hours was 64-76 dB(A) L_{10} (1 hour). About 80 to 630 vehicles passed through this road hourly during the restriction hours. Noise measurements at City One Shatin indicated that the typical noise caused by an individual vehicle ranged from about 68-75 dB(A) for passenger cars and taxis, 71-76 dB(A) for motorcycles and 74-83 dB(A) for medium/heavy goods vehicles and buses. Details of the noise measurement results are at Annex C.

7. The above measurement results show that the sporadic traffic noise could be disturbing to some residents living next to the roads concerned during the restriction hours.

Site Visit

8 Some Members of the Panels on Environmental Affairs and Transport paid a site visit around midnight on 21 October 2002 to the podium of East Asia Gardens, Tsuen Wan overlooking the Texaco Road Flyover and the at-grade section of Texaco Road. Representatives from the Environment, Transport and Works Bureau, Environmental Protection Department, Transport Department and the Police were present. The Environmental Protection Department arranged noise measurements at the location to show Members the relative difference in noise levels from vehicles passing through the flyover and through the at-grade road section.

9. Members noted the traffic condition during the restriction hours and the difference in relative noise levels between the same type of vehicles passing over the flyover and through the at-grade road section. Noise from vehicles on the flyover was typically 5 dB(A) or above that from the same type of vehicles on the at-grade section, partly because of the gradient of the flyover and partly because the flyover/podium was in effect acting as a noise barrier.

10. During the site visit, the possibility of launching a trial scheme to ban only heavy vehicles from the Texaco Road Flyover during the traffic restriction hours was also discussed. Members noted the site constraints and the clarifications by the Police on the practical difficulties and safety concerns if the Police were to set up roadblocks to divert heavy vehicles away from the flyover during the trial period.

Advice Sought

11. We would like to seek Members' advice on whether a pilot trial scheme should be launched at the Texaco Road Flyover to assess the effectiveness of the suggested traffic management schemes and to evaluate the possible impact on local traffic and transport trades. The trial could be for two weeks. Because of the implementation problems and traffic safety considerations as explained to Members during the site visit on 21 October last year, Members can consider the option of a trial banning only franchised buses from the flyover from midnight to 6 a.m. since it can be noticed that franchised buses generally create more of a noise disturbance to residents of East Asia Gardens than other vehicles when they pass by the residential development. We will conduct opinion surveys to solicit the views of the affected residents on any benefits and the impact of the pilot scheme on them during those two weeks. As suggested by Members earlier, we will review if traffic management schemes should be introduced at the Kwai Chung Road Flyover, the Texaco Road Flyover and Ngan Shing Street in the light of the results of the pilot scheme.

12. If we are to conduct a trial banning all vehicles from the Texaco Road Flyover, the cost of employing contractors to put in place traffic diversion equipment to block off the flyover for two weeks and other associated arrangements is estimated at around $100,000. While funding for the trial has been set aside, restriction on a permanent basis would have to be done through erection of signs and introduction of penalty for offenders as no financial provision will be made for the required "make shift" arrangements on a permanent basis.

NOISE BARRIER RETROFIT PROGRAMME

13. We have so far included 32 existing road sections in the retrofit programme. The priority of these noise barrier retrofit projects is being reviewed in conjunction with other public works projects in the annual resource allocation exercise. We will announce the results of the review in a few months' time.

LOW NOISE SURFACING MATERIAL

14. It is now a standard government practice to pave high-speed roads/flyovers with speed limit at 70km/hour or above with low noise surfacing material. The porous friction course of the material helps to reduce the road/tyre interaction noise on high speed and low speed roads by 5 and 3 dB(A) respectively. However, application of such material on low speed local roads is constrained by road geometry, as frequent start-stop movements and high percentage of heavy vehicles will cause rapid wear and tear, resulting in uneven road surface and the need for frequent resurfacing. This would 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.

15. We identified 72 local roads as possible targets for resurfacing with low noise surfacing material. Resurfacing works for 24 of them have been confirmed to be feasible, and works have already started on them. Subject to the satisfactory results of the feasibility studies on the rest, we plan to complete the resurfacing programme by mid-2005. We estimate that the resurfacing programme will benefit about 40,000 residential units.

ACTIVE SOFT EDGE TECHNOLOGY FOR NOISE BARRIERS

16. Active Soft Edge Noise Controller is a device that is under research for mounting on top of conventional roadside noise barriers for additional noise reduction. Its working principle is to use speakers to reproduce noise from the traffic passing before the barrier, but at an opposite phase, to cancel out part of the traffic noise at the receiver side. The technology is being researched into and we are not aware of any commercial application overseas.

17. A private company has earlier on submitted a proposal to the Administration for testing the technology in Hong Kong. We will provide assistance wherever appropriate.

18. We keep an open mind on new technologies that are practicable for mitigating traffic noise and would keep in view the development of such technologies for possible application in Hong Kong.

Environment, Transport and Works Bureau

February 2003

Annex A

Noise Measurement Results at Kwai Tak House, Kwai Fong Estate

Period	Traffic Noise Level dB(A) L10 (1 hour)	Medium Goods/ Heavy Goods Vehicles		Buses		Motorcycles		Others	
		Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number
2300-2400	65.9	73-76	39	73-76	34	70-74	19	68-70	306
0000-0100	64.8		28		6		6		170
0100-0200	63.3		26		4		11		100
0200-0300	62.7		29		12		3		119
0300-0400	62.4		18		11		3		105
0400-0500	63.1		39		12		3		106
0500-0600	64.5		35		14		2		72
0600-0700	66.2		77		16		6		129

Note: ▭ **proposed flyover closure period**

Annex B

Noise Measurement Results at East Asia Garden, Texaco Road

Period	Traffic Noise Level dB(A) L10 (1 hour)	Medium Goods/ Heavy Goods Vehicles		Buses		Motorcycles		Others	
		Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number
2300-2400	73.9	80-81	115	80-81	56	74-78	14	72-74	269
0000-0100	72.5		49		22		7		228
0100-0200	71.2		78		15		5		208
0200-0300	68.2		41		3		6		170
0300-0400	66.9		32		7		4		156
0400-0500	68.5		59		10		4		224
0500-0600	69.7		68		8		2		241
0600-0700	74.8		117		39		5		238

Note: ▭ **proposed flyover closure period**

Annex C

Noise Measurement Results at CityOne Shatin, Ngan Shing Street

Period	Traffic Noise Level dB(A) L10 (1 hour)	Medium Goods/ Heavy Goods Vehicles		Buses		Motorcycles		Others	
		Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number	Typical passing-by noise level, dB(A)	Number
2300-2400	75.6	74-83	6	75-82	104	71-76	8	68-75	513
0000-0100	73.6		2		51		5		184
0100-0200	68.3		5		11		4		163
0200-0300	65.2		2		6		2		71
0300-0400	64.0		2		6		2		99
0400-0500	64.8		2		6		3		69
0500-0600	68.1		7		29		3		136
0600-0700	72.9		16		111		6		317

Note: ▭ **proposed period to ban the use by goods vehicles with gross vehicle weight exceeding 5.5 tonnes**