

## **For Information**

### **Legislative Council Panel on Transport Progress on Measures to Enhance Safety of Franchised Bus Operation**

#### **PURPOSE**

This paper updates Members on the progress in the pursuit of measures to further enhance safety of franchised bus operation.

#### **BACKGROUND**

2. The Legislative Council Panel on Transport (“the Panel”) was briefed on 24 October 2006 (LC Paper No. CB(1)110/06-07(03)) on measures to enhance the safety of franchised bus operation. The Administration was asked to update the Panel in three months’ time on the progress of the following safety measures –

- (a) retrofitting seatbelt on franchised bus;
- (b) enhancing the standard of bus windscreen on upper deck;
- (c) installation of black box on franchised bus;
- (d) working schedule for bus captains;
- (e) promoting health of bus captains; and
- (f) employing bus captains under contract term.

#### **LATEST DEVELOPMENT**

##### ***(a) Retrofitting seatbelt on franchised bus***

3. As at November 2006, out of the 5,862 franchised buses, 2,122 buses have seatbelts at their exposed seats<sup>1</sup>. The Transport Department (“TD”) sought the advice of Alexander-Dennis Limited (“ADL”), the major bus body builder which supplied most of the franchised buses in Hong Kong, on the

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<sup>1</sup> Exposed seats are forward facing seats in a franchised bus which are not immediately behind another forward-facing seat or an internal partition/panel. There are usually 14 exposed seats in a double deck bus: 5 seats at last row on lower deck; 4 seats at third row facing backward-facing seats on lower deck; 4 seats at first row on upper deck; and the middle seat at last row on upper deck.

feasibility of retrofitting seatbelts on the existing buses. Their initial assessment regarding retrofitting of the seatbelts on the bus constructed before 1997, which constituted about 50% of the bus fleet, is summarized as follows –

- (a) A number of the older buses were produced by manufacturers who are no longer in operation, e.g. Walter Alexander and Duple Metsec. There may not be complete information on the detailed design of these buses, thus hampering technical analysis on the feasibility of retrofitting works;
- (b) There are some 30 different types of buses, each requiring extensive redesign and destructive physical testing. The cost for evaluation and redesign of one model of bus would be roughly \$3.4M per design. Assuming all information is readily available, it would take around 18 months for the design analysis before modification work can commence;
- (c) Modification work would be required to strengthen the structure of the buses to support the additional loading from the seatbelt mountings, which is substantial and costly, i.e. about \$150,000 per bus. Modification to each bus would take about four weeks to complete; and
- (d) The age of the pre-1997 buses is already 10 years or above. It is likely that their structures have undergone modifications and repairs during their service life. If seatbelts are to be retrofitted to the structures, the condition of each and every bus has to be assessed and repaired individually beforehand. The cost is likely to be very considerable.

ADL is still exploring the feasibility of retrofitting seatbelts on the post-1997 buses without seatbelts.

4. We have collected information from other countries on the requirements of fitting and fastening of seatbelts on buses. So far, we have not found any country that have legal requirements for the provision of seatbelts on passenger seats of buses designed for urban use and are allowed to carry standing passengers. According to the transport authorities of these countries,

the benefit of imposing a seatbelt requirement in their buses is uncertain. A summary of the findings is at **Annex I**.

***(b) Enhancing the standard of bus windscreen on upper deck***

5. The franchised bus companies and TD have carried out tests of the upper deck toughened glass<sup>2</sup> windscreens of the franchised buses and concluded that applying a transparent protective film onto the glass would effectively contain the shattered glass fragments in the event of an accident. This will help protect passengers from potential injury. All franchised bus companies which have double-deck buses have agreed to complete the modification work on the upper deck toughened glass windscreens of all existing buses or replace them with laminated glass<sup>3</sup> by mid 2008.

***(c) Installation of black box on franchised bus***

6. The franchised bus companies have been installing black boxes<sup>4</sup> on their buses to monitor the driving behaviour of their bus captains. New Lantao Bus Company (1973) Limited ("NLB") has completed installation to its entire fleet in March 2006. As for the Kowloon Motor Bus Company (1933) Limited ("KMB") and Long Win Bus Company Limited ("LW"), about 75% (or 3,033 buses) of KMB's fleet and 94% (or 144 buses) of LW's fleet have been installed with black boxes as at November 2006. The two bus companies will complete installation of black boxes on their fleets by end 2007. Citybus Limited ("CTB") and New World First Bus Services Limited ("NWFB") are conducting trials on two different types of black boxes on 100 buses. CTB will complete installation of black boxes to its entire fleet by end of 2007, while NWFB would formulate the detailed installation plan taking account of the result of the trial.

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<sup>2</sup> Toughened glass is glass that has been heat-treated to increase its strength, and to allow it to fracture into small pieces when broken.

<sup>3</sup> Laminated glass has a plastic interlayer in between two glass layers, and is designed to retain the fragments when the glass is shattered.

<sup>4</sup> Electronic tachograph installed on vehicles is commonly known as "black box". It records the operation data of the vehicle, such as journey speed, journey time, distance travelled, bus tilting angle, acceleration and deceleration, door opening, etc. It can be used for monitoring the drivers' performance and accident investigation.

*(d) Working schedule for bus captains*

Rest time between trips

7. The franchised bus companies schedule the working and rest time of bus captains based on the “Guidelines on Working Schedule for Franchised Bus Drivers” issued by TD. Copy of the Guidelines is at **Annex II**. All franchised bus companies adopt the following principles to improve the bus captains’ scheduling arrangements –

- (a) review from time to time the driving duties taking account of the traffic situation to ensure that bus captains will have sufficient time to operate the bus trips, and have rest and meal breaks;
- (b) carefully consider the preferences of individual bus captains in assigning driving duties to them; and
- (c) give sufficient notice to bus captains before changing their driving duties.

8. Regarding breaks between trips, bus companies normally provide longer rest-breaks for routes with longer journey time, and will spread out the rest-breaks throughout the day as evenly as practicable. In practice, the length of rest-break is set at around 10% of the scheduled journey time of a bus route. Since the actual journey time of bus trips varies with traffic condition, the companies would deploy extra buses to cater for serious traffic congestion, special traffic incidents and ad hoc break-down of vehicles. This will help maintain the scheduled service timetable and allow the bus captains to have reasonable rest time between trips. The companies also review and adjust the scheduled journey time of the bus routes from time to time, taking into account the traffic conditions, passenger demand as well as the feedback from bus captains, regulators and driver unions.

9. The three major franchised bus companies i.e. KMB, CTB and NWFB operate many bus routes in the urban area where the traffic condition is more variable and sometimes unpredictable. These three companies conducted a survey on the actual between-trip rest-break time of their bus captains recently. About 64,000 bus trips were operated daily by the three companies during the survey period. The survey found that bus captains had rest-breaks of five

minutes or more between trips in 72% of the trips (46,000 trips) and had rest-breaks of two minutes or more between trips in 90% of the trips (57,800 trips). While the companies had arranged the bus captains to take rest-break as far as possible, TD has urged the companies concerned to review the scheduled journey time of the relevant bus routes and to propose realistic adjustments where appropriate.

#### Travelling time to and from work

10. The bus companies have implemented measures to shorten their bus captains' travelling time to and from work. According to KMB and LW, most of their bus captains live within the districts where their bus depots are situated. The companies operate crew buses to carry bus captains to and from depots and bus termini. In case a bus captain moves to other district, he/she may apply for transfer from one depot to another. The two bus companies did not have any outstanding application for transferal from the bus captains as at end November 2006. As for other bus companies, to facilitate bus captains travelling to and from work, CTB and NWFB provide crew bus to their bus captains, whereas NLB provides quarters for bus captains who live in a distant district.

#### *(e) Promoting health of bus captains*

11. Apart from providing appropriate schedule arrangements for bus captains, to reduce the stress felt by bus captains while on driving duties, the franchised bus companies have been providing them with regular training and refresher courses to improve their driving skill and behaviour. They also regularly review the contents of their training courses in the light of changing traffic environment, passenger requirement, and accident occurrence. In addition, they also facilitate their bus captains in attending the safety courses and forums organized by TD and the Police.

12. All franchised bus companies provide medical care for their employees. In addition to medical treatment and paid sick leave, CTB, NWFB and NLB have been providing annual medical examination for their bus captains aged 50 or above whereas KMB/LW have been providing examination to bus captains aged 60 or above. After consultation with the drivers' unions,

KMB and LW will also provide annual medical examination for their bus captains aged 50 or above with effect from 2007.

13. In addition to the above, the franchised bus companies regularly organize recreational activities such as picnics, hikings and football matches, etc. for their employees in order heighten their awareness of the importance of maintaining a proper work-life balance. They also arrange seminars and counselling service for their bus captains to help them maintain a healthy physical and mental life. In 2007, KMB/LW will launch an Employee Caring Program which will provide counselling services, health talks, stress management tips and family days to their employees and CTB/NWFB will continue to organise Fun Day, etc. TD considers that the health-care services, training and other work-balance activities provided by the franchised bus companies are generally adequate and comprehensive in helping their bus captains to achieve proper work-life balance.

*(f) Employing bus captains under contract term*

14. KMB/LW and CTB/NWFB started to employ new bus captains on contract terms since 2000 and 2003 respectively after consultation with their trade and driver unions. Contract terms range from one to two years and the bus companies advise that 99% of the contracts are renewed on expiry. The number of contract bus captains in the bus companies as at December 2006 is as follows –

<b>Company*</b>	<b>Total no. of bus captains</b>	<b>No. of bus captains under contract terms</b>	<b>% of bus captains under contract terms</b>
KMB	8,170	1,920	23.5%
CTB	2,088	96	4.6%
NWFB	1,668	82	4.9%
LW	331	53	16%
<b>Total</b>	<b>12,257</b>	<b>2,151</b>	<b>17.5%</b>

\* NLB has no contract bus captains.

15. KMB has the highest percentage of bus companies employed under contract terms. The company has analysed the accident rates of non-contract

and contract bus captains and a summary of the analysis is at **Annex III**. The findings do not show evidence that the contract bus captains have a higher accident rate than the non-contract bus captains.

16. TD will, together with the franchised bus operators, continue to closely monitor the accident statistics, analyse causes and trends of bus accidents, and explore improvement measures to further enhance bus safety.

### **ADVICE SOUGHT**

17. Members are requested to note the contents of this paper.

Environment, Transport and Works Bureau  
Transport Department  
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**Summary of Seat Belt Requirements in Buses in some Overseas Countries**

<b>Countries</b>	<b>Fitting of seatbelts in passenger seats</b>	<b>Wearing of seatbelts by passengers</b>	<b>Remarks</b>
USA	No	N/A	-
Canada	No	N/A	-
UK	3-point/ lap-belt <sup>(1)</sup>	Mandatory	Fitting requirements are not applicable to buses first used before 1.10.2001 or buses designed for urban use with standing passengers.
Australia (Victoria)	Lap-belt <sup>(2)(3)</sup>	Mandatory	Fitting requirements not applicable to buses specially designed with spaces for standing passengers.
New Zealand	No	N/A	-
Netherlands	Lap-belt <sup>(3)</sup>	Mandatory	Fitting requirements not applicable to public transport buses.
Singapore	No	N/A	-

**Notes:**

1. Lap belts may only be fitted in forward facing non-exposed seats where an appropriate energy absorbing seat or surface is present in front.
2. Seat belts are to be provided for exposed seats.
3. Lap-belt is the minimum requirement.

**Guidelines on Working Schedule for Bus Drivers**

(Revised on 1 May 2004)

- Guideline A – Drivers should have a break of at least 30 minutes after 6 hours of duty and within that 6-hour duty, the drivers should have total service breaks of at least 20 minutes.
- Guideline B – Maximum duty (including all breaks) should not exceed 14 hours.
- Guideline C – Driving duty (i.e. maximum duty minus all breaks of 30 minutes or more) should not exceed 11 hours.
- Guideline D – Break between successive working days should not be less than 9 hours.

**KMB's Analysis of Bus Accident Rates of Contract and Non-contract Bus Captains**

All KMB bus captains employed before 2000 were not on contract terms, while those employed since 2000 were on contract term. In 2005, KMB compared the accident rates of the contract and non-contract bus captains.

2. As bus driving experience is one of the factors of bus accidents, KMB analysed the accident data of bus captains with less than 24 months bus driving experience in the periods 1998-1999 and 2002-2004. The accident records of two groups of bus captains were analysed:

- (a) those with less than 24 months experience in years 1998 and 1999. All of them were not on contract term; and
- (b) those with less than 24 months experience in years 2002 to 2004<sup>1</sup>. All of them were on contract term.

3. The findings are summarized below -

		Drivers employed under non- contract terms		Drivers employed under contract terms		
		1998	1999	2002	2003	2004
Year		1998	1999	2002	2003	2004
(a)	No. of accidents involving bus captains with experience less than 24 months	307	274	160	99	76
(b)	Average no. of bus captains with experience less than 24 months	1,377	1,395	1,155	834	609
(c)	Accident rate per bus captains (a / b)	0.223	0.196	0.139	0.119	0.125

4. The above findings do not show that KMB's contract bus captains had higher accident rates than the non-contract ones.

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<sup>1</sup> Accident records of Years 2000 and 2001 were not used because in these two years, some of the bus captains with less than 24 months bus driving experience were on contract term and some were on non-contract term.