CLOSING SUBMISSIONS OF COUNSEL FOR THE INDEPENDENT REVIEW COMMITTEE

PART ONE

SECTION A

SECTION B

SECTION A – THE NEED FOR MORE SYSTEMATIC EMPHASIS AND FOCUS ON BUS SAFETY

1. A NEED FOR A STRONGER AND SYSTEMATIC APPROACH TO BUS SAFETY IN REGULATING, MONITORING AND OPERATION OF FRANCHISED BUS SERVICES

Introduction

1.1 Franchised bus services in Hong Kong are currently provided by five operators under six bus franchises (the "**FB Operators**"): **TD-1/ p.72**; for the franchises granted, see: **TD-2/ p.321 to 495**. The Transport Department (**"TD**") is responsible for regulating the operation and management of the FB Operators; this includes the monitoring and providing of impetus for improving bus safety: **Day 19/ p.93 to 94**.

1.2 Despite safety being an essential component in the running of a franchised bus operation, the structure under which franchises are granted to operators and subsequently monitored by the TD places insufficient emphasis on bus safety. For example:

(i) In the existing franchise agreements, 'safety' is referred to only once in the general provisions, within a clause that was introduced only in 2013: **TD-1/ p.430/ para 6**; **TD-2/ p.105** (2015 for NLB and CTB(F1), 2017 for KMB: **TD-1/ p.431/ para 6**; **TD-2/ p.111/ para 10**; **TD-2/ p.153**). The reference merely ensures that the FB Operators would be responsible for the provision of facilities, including those which enhance safety, ***if*** it is required by TD. See for example: franchise granted to KMB: **TD-2/ p.321 to 495/ clause 7(1)**.

(ii) The extension and renewal of a franchise is based on the capability of the FB Operators to provide a '*proper and efficient service*': **TD-2/ p.13/ s.6(2)**. While safety may come into play in an assessment for extension or renewal, the focus is currently on the reliability and efficiency of service provided, considered commercially: **TD-1/ p.74 to 77/ para 9 to 11**.

(iii) FB Operators have taken advantage of advancements in black box capabilities to meet TD's requirement in the provision of real-time departure and arrival information: **CTB-3/ p.582 to 583; CTB-1/ p.55 to 56; Day 5/ p.4 to 6**. However, this initiative was motivated by improvement in the reliability and efficiency of bus service. Little has been done to explore the advancements in capabilities of the black box to improve safety until recently: **Day 4/ p.7**; for recent developments, see: **TD-5/ p.1770 to 1773/ para 2.15 to 2.22**.

(iv) Prior to the Tai Po accident, the Government provided little by way of subsidies, and none specifically directed at the enhancement of bus safety. The FB Operators were largely left to develop their own safety enhancements other than those expressly required by legislation or the TD under the franchise agreements (for examples, see: **TD-1/ p.82 to 83/ para 4**) and periodically by way of written requirements or guidelines (see, for example, the working hours guidelines: **TD-2/ p.272 to 274**; the installation of black box: **TD-5/ p.1597**): **TD-1/ p.41/ para 26 to 27**; **TD-1/ p.83/ para 5**.

(v) While FB Operators are required to propose targets for accident involvement rates for each of the Five Year Forward Planning Programme ("**FPP**"), failing to meet such targets has attracted no consequences; vice versa, meeting or exceeding them has resulted in no direct benefit. Other than the broad rate relating to the number of

accidents per million vehicle km traveled, no safety target is set based on more nuanced or detailed data for different types of accidents or incidents.

(vi) No single team in TD is responsible for bus safety, with the responsibility spread among 4 units: **Day 19/ p.94 to 96, 108**. "*No set regular meetings between those units*" were held between those units: **Day 19/ p.180/ line 6**.

(vii) Additional or "new" safety measures adopted in the past have largely been reactive to major accidents, a matter which the TD effectively accepted in evidence: **Day 19/ p.97 to 99**; **101-105** (for details, see para 1.3 below).

(viii) There is no regular forum or standing committee in which enhancement to bus safety (both from a technological and operational standpoint) can be proactively discussed and/or shared amongst senior management of the FB Operators and/or the TD as a collective: **Day 19/ p.118 to 121**.

The reactive nature of the current approach

1.3 As the TD themselves fairly accepted during oral testimony, many of the enhancements on bus safety throughout the years have largely been in reaction to bus accidents:

(i) Requirements to install various new on-vehicle safety-related devices throughout the years: **TD-1/ p.85 to 89; Day 1/ p.76 to 77; Day 19/ p.102 to 106**.

(ii) The most recent review of the Guidelines on Bus Captain Working Hours, Rest Times and Meal Breaks (the "**Guidelines**") began in late

2017, prompted by the 2017 Sham Shui Po accident. This review was completed shortly after the Tai Po accident: **Day 1/ p.77 to 78; Day 19/ p.105**.

(iii) The Working Group on Enhancement of Safety of Franchised Buses (the "**Working Group**") was set up in response to the Tai Po accident: **Day 1/ p.78 to 79; Day 19/ p.97 to 99; KMB-12/ p.4869-2**; **TD-5/ p.1761/ para 1.1**.

1.4 Many of the reactive measures were one-off responses to specific accidents and were not proactively monitored or reviewed. The lack of a long-term systematic and/or proactive approach in improving bus safety has resulted in the failure to keep up with technological advancements. For example:

(i) The basic minimum specifications for the black box was first issued in 2003 and has not been updated until August 2018 (despite TD having reached agreement with FB Operators in 2006 to change one small aspect of it in respect of the specified deceleration threshold: **TD-1/ p.495/ para 4; TD-5/ p.1856 to 1861**). The August 2018 update and the deliberation of it in the Working Group were carried out only ***after*** that issue was looked into during the course of this Inquiry: **Day 2/ p.66 to 67; Day 19/ p.4/ line 6; Day 19/ p.142 to 143**.

(ii) The Working Group was originally intended to run for 3 months only with a limited scope of work: **KMB-12/ p.4869-2; KMB-12/ p.4869-9; Day 19/ p.129 to 132, 140 to 141**.

(iii) FB Operators were apparently not aware that the TD had available a digital speed map since November 2010 (**TD-5/ p.1771/ para 2.18**) until the Committee raised this with the TD in the course of this Inquiry **TD-1/ p.366; TD-1/ p.477; Day 12/ p.109; Day 13/ p.29 to 30; Day 14/**

p.115; Day 19/ p.137 to 138. Without a digital speed map, the capabilities of black boxes have not been used to their fullest potential because, although equipped with GPS systems, the location of the buses could not be matched automatically with the speed limit of a specific road section. The ability of driver alert systems to provide real time speeding alerts to the drivers that relate to different speed limits of different road sections were thus negated, and the ability of the bus operators to efficiently monitor drivers (in real-time or otherwise) exceeding speed limits of a particular road section was also hampered. This approach can be contrasted sharply with the approach in London, where trials that related to the potential use of intelligent speed assistance using a digital speed map began from as early as 2009: **MISC-3/ p.945**, a matter of which TD was not aware: **Day 19/ p.155/ line 16**.

The need to make safety a priority in order to promote a proactive approach to improving bus safety

1.5 In order to sustain a safe and reliable franchised bus service, it is submitted that bus safety must:

(i) become a structural priority and point of emphasis in the regulating, monitoring and operation of a franchised bus service;

(ii) be measured, monitored and assessed at a more nuanced level that takes into account different causes of different types of accidents; and

(iii) be part of a systematic and proactive approach under which bus safety can be enhanced or improved by taking advantages of technological advancements and new operational initiatives.

1.6 It is submitted that the following measures may help to achieve these three objectives:

(i) The adoption of more sophisticated safety indicator(s) (in addition to the number of accidents per million vehicle km travelled) that target different aspects of bus safety;

(ii) The setting of safety targets in tandem with the use of more sophisticated safety indicator(s), with added financial pressure or incentive if these targets are missed or exceeded, as the case may be;

(iii) Bus safety and the provision of a safe bus service should become a point of emphasis in all agreements for the provision of FB services. This may be achieved through, *inter alia*, the incorporation of (i) & (ii) above into such agreements;

(iv) The TD should have within it a team dedicated to the monitoring and enhancement of bus safety or public transport safety;

(v) The Government should take a more proactive approach in assessing and implementing new technologies that enhance bus safety, include the conduct of its own trials of such new technologies and be more prepared to provide a subsidy to FB Operators for the installation of safety enhancements upon the carrying out of a proper cost/benefit analysis;

(vi) The Government should set up a safety innovation fund that encourages the proactive identification and trialing of new bus safety initiatives by FB Operators or other relevant bodies;

(vii) There should be a permanent standing committee or working group that includes various stakeholders in the provision of franchised bus services

such that bus safety enhancements both in the form of technological enhancements and operational initiatives can be discussed on a proactive basis;

(viii) Improvement in the reporting, maintaining and publishing of bus accident data so that the data is more detailed and transparent.

1.7 The submissions below in sections 2-7 below will set out in more detail the evidence relating to each of these measures in turn.

2. MORE SOPHISTICATED SAFETY INDICATORS

2.1 Currently, the accident involvement rate is the indicator adopted by the TD in evaluating the safety of bus services provided by the FB Operators: **Day 19/ p.33 to 34**. In particular, the TD focuses on (i) accident rates per million vehicle-kilometres; (ii) the absolute number of buses involved in accidents; and (iii) the absolute number of traffic accidents involving buses of the particular operator. See for example, **TD-5/ p.1729**.

Issues with the current indicator and recommendations

2.2 Firstly, the current indicator does not distinguish between accidents where the FB Operators and/or bus captains are at fault and otherwise: **Day 19/ p.35 to 36**. In order for any set performance targets to be meaningful, it is important for safety indicators adopted to measure only matters that can be influenced by the FB Operators: **Day 16/ p.67/ line 25**; **Day 16/ p.93/ line 22** (evidence of Professor Stanley). See, response from TD: **Day 19/ p.37 to 40, 71 to 73**.

2.3 Secondly, safety indicators used should be more nuanced. As an example, the data currently being collected by FB Operators and reported to the TD in their

FPPs is capable of distinguishing between "fatal", "serious" and "slight" traffic accidents (see: **TD-5/ p.1729**); however no particular weight is given to such categories of seriousness when calculating the accident involvement rate: **Day 19/ p.21/ line 13**; **Day 16/ p.61 to 62**; **Day 16/ p.72/ lines 2 to 19**. TD appears to be receptive to the idea of a weighted accident rate: **Day 19/ p.72 to 73**.

2.4 Thirdly, safety indicators adopted should be the outcome of negotiation between TD and the FB Operators: **Day 16/ p.74/ line 5**. A bundle of indicators which targets specific safety problems has been suggested: **Day 16/ p.61 to 63**; **Day 18/ p.54 to 56**; **MISC-2/ p.820-106**. See London's approach in identifying main causes of accidents and the devising of specific responses: **MISC-3/ p.982**; **986 to 991**.

2.5 For a comment on the quality of good indicators generally, see: **Day 16/ p.67 to 68**. See also, the development of a new Safety Performance Index in London. A total of 81 indicators have been identified thus far, forming 8 'baskets' of measures relevant to risk within specified work areas: **EXP-1/ p.150/ section 7.8**; **Day 18/ p.52 to 53**; **MISC-3/ p.1194**; **MISC-3/ p.1264**; **EXP-1/ p.189-753 to 189-775**.

Recommendation

2.6 It is not suggested that the overall accident rate per vehicle km should be abandoned entirely as an indicator of safety performance; however, this rate should only be considered as a starting point. Bus safety would benefit from a more ***sophisticated*** and ***targeted*** scheme for measuring safety. Use of indicators, whether weighted across a number of different accident types of bus safety areas and/or ***targeted*** at specific problem areas, would:

(i) allow the TD to better assess the safety performance of individual FB Operators not only on an overall basis, but also in respect of specific areas of concern;

(ii) be capable of reflecting improvements or regressions by individual FB Operators such that incentives or penalties can be imposed in order to provide added safety performance pressure; and

(iii) give FB Operators an added incentive to devise enhanced safety initiatives that relate specifically to problem areas that are targeted by well-defined safety indicators.

2.7 It is noted that TD has showed willingness to consider developing and adopting more sophisticated safety indicators: **Day 19/ p.72 to 73; 80 to 82**. Some bus operators have also expressly indicated support: **CTB-1/ p.99**.

3. USE OF INCENTIVE AND PENALTY CLAUSES

3.1 FB Operators are currently required to propose to the TD targets for reduction in the accident rate per million vehicle km in each of their FPPs. However, the failure of FB Operators in meeting their self-proposed targets attracts no consequences whatsoever. Contrast letters from TD to KMB (**TD-5/ p.1728**) and CTB (**TD-5/ p.1740**), where KMB failed to meet the target and CTB did.

3.2 The lack of safety performance pressure on FB Operators has been commented on by both experts. The use of incentive/penalty provisions, in hand with more sophisticated safety indicators (see above), has been recommended by Professor Stanley: **EXP-1/ p.83 (point 2)**; **EXP-1/ p.84 to 87**; **Day 16/ p.66 to 68**. See also the approach of the London Assembly Transport Committee: **MISC-3/ p.1150/ para 2.1 to 2.9**. There is also the benefit of encouraging

closer (and targeted) monitoring of safety performance by the authorities: **Day 16/ p.96/ line 12**, as well as providing a renewed emphasis on safety.

Penalties for not meeting safety targets

3.3 In Hong Kong, statutory penalties can be imposed on FB Operators: **s.22(2) PBSO**. The last penalty imposed was in 1996 for lost trips. TD has been open to the idea that more sophisticated indicators, once developed, may be integrated with the existing penalty scheme so as to target safety performance: **Day 19/ p.86 to 90**. See, view of CTB and NWFB: **CTB-1/ p.197**.

Incentivizing safety in other jurisdictions

3.4 Incentive clauses have been used in other jurisdictions to ensure service ***reliability***. For example, in London: **EXP-1/ p.131/ section 4.3.3**; **Day 18/ p.21 to 25**; Melbourne: **EXP-1/ p.26/ section 3.4**. In Singapore, accident rates form part of the service standards, failing which financial penalties can be attached: **EXP-1/ p.249-15**.

3.5 In London, TfL has not previously linked safety targets to incentive/penalty payments, the rationale being that "*[safety] is not directly related to payments/deductions due to the importance of avoiding the suggestion that safety of operation is in any way a negotiable trade off against cost*". The Transport Committee of the London Assembly soundly disagreed, stating that "*Operators will behave in line with the incentives (particularly the financial ones) that are set by TfL – their shareholders would expect nothing less. By not factoring safety into the payment structure of contracts, TfL is failing to direct operators to provide the safe service we think London needs … If TfL wants to take positive steps to reduce injury and collision rates, it must introduce meaningful incentives for operators to make their services safer.*" **MISC-3/ p.1151/ para 2.6 to 2.7**

Potential concerns over incentivizing safety

3.6 Three potential concerns over direct incentivization of safety have been identified: (i) underreporting accidents or incidents; (ii) reduced collaboration between operators; and (iii) the suggestion that safety can be a trade-off against cost e.g. operators factoring in penalties when bidding for route contracts: **EXP-1/ p.153/ section 8.5**; **EXP-1/ p.189-0-21/ section 7.12**; **Day 18/ p.199 to 202**.

3.7 For responses to the above concerns by the Melbourne expert, see: **Day 16/ p.91 to 95**. In particular, it was noted that the risk of underreporting can be minimized by adequate monitoring and compliance assurance systems.

3.8 The concerns about reduced collaboration between operators and factoring in of possible penalty costs when bidding for route contracts would appear to us to be more pertinent to an environment in which bus operators are in direct competition with each other over the tendering of bus routes, such that the poor safety performance of a fellow operator may result in a direct benefit to another operator competing for the same or same type of routes. We do not see the same concern arising in the Hong Kong context where FB Operators do not compete directly for franchise agreements (other than new bus routes that are now subject to competitive tendering).

Recommendation

3.9 The Government should consider incorporating incentive/penalty clauses into the franchise agreements that are tied to the meeting of safety performance targets.

4. SUBSIDIES AND SAFETY INNOVATION FUND

4.1 The Hong Kong bus network operates within a commercial framework and is unique in not receiving any public subsidy. Public transport in other jurisdictions, including bus services, are commonly heavily subsidized by the government. See: Melbourne: **EXP-1/ p.6 to 7/ para 2.2**; **Day 16/ p.38 to 39**; London: **EXP-1/ p.120 to 121**; **Day 18/ p.34 to 35**.

Concerns over the current model and recommendations from the experts

4.2 Sustainability of the Hong Kong model has been questioned in the sense that commercial considerations may result in a lack of focus on safety issues over bottom line profit: **EXP-1/ p.152/ section 8.3**.

4.3 The public bus service generates large external benefits to the society which would not be captured by, or reflected in, the profits of FB Operators. Governmental subsidies based on the value of these external benefits would allow the utility of bus services to the society to be maximized. See: **Day 16/ p.40 to 41; 158 to 160; 166 to 168**; **EXP-1/ p.91 to 92**.

4.4 Development of new bus safety technology and initiatives can be restricted under a commercial framework where the ultimate consideration of FB Operators is to maximize income and reduce costs.

4.5 Public funding for safety improvements has been recommended: **Day 16/ p.87 to 88**; **EXP-1/ p.125**; **EXP-1/ p.152**. See also, in relation to retaining or attracting bus captains: **EXP-1/ p.92**.

Safety Innovation Fund

4.6 London launched a Safety Innovation Fund in 2017 and has recently announced the launch of the Bus Safety Innovation Challenge Fund in 2019 to encourage proactive development and trial of new safety measures or devices: For details, see: **EXP-1/ p.146 to 147/ section 7.3**; **EXP-1/ p.189 to 70/ section 4.2**; **EXP-1/ p.172**; **Day 18/ p.92 to 94**.

4.7 Funding of this nature would encourage the proactive development of innovative bus safety enhancements and therefore ought to be considered in Hong Kong.

Recent developments in Hong Kong

4.8 TD considered subsidies to be a topic that can be discussed: **Day 19/ p.169 to 170**. In fact, subsidies for the franchised bus network were included in the Chief Executive's 2018 Policy Address (the "**Policy Address**") and Policy Agenda recently published. In particular, $500 million is to be set aside for retrofitting on appropriate buses (i) Electronic Stability Control; (ii) speed limiting retarder; and (iii) seat belts on upper deck seats: **Policy Address §264**; **SEC-3/ p.1501 to 1502**. It is noted that although the waiving of tolls for franchised buses can also be viewed as a form of subsidy, this does not appear to be driven directly by considerations of bus safety: **Policy Address §259**; **SEC-3/ p.1499/ para 5**. For comments from the KMB Employees Union and CTB: **TU-1/ p.112-131/ para 5**; **CTB-1/ p.104**.

4.9 It is submitted that the Government's recent position on the provision of subsidies for installation of bus safety features is conductive to the enhancement of bus safety. However, the question of whether a full cost/benefit analysis has been conducted before the safety devices were selected remains. The importance of such analysis has been stressed by the

experts and other invited parties: **Day 16/ p.87**, **124 to 125**, **144 to 146**, **149 to 150**; **EXP-1/ p.148**; **EXP-1/ p.155/ para 8.9**; **EXP-1/ p.249-5/ para 5**. For details as to the approach to cost/benefit analysis in London, see: **EXP-1/ p.189-744 to 189-752**. In particular, the Working Group itself considered that further assessments on the technical, operational and financial feasibility are required for the installation of several of the named devices: **TD-6/ p.2070 to 2072**. The provision of a large subsidy to advance a safety feature that does not provide a proportionate large safety benefit may result in the development of other (and potentially more effective) safety features being neglected.

4.10 In contrast, TfL has commissioned the Transport Research Laboratory to conduct full research for the enhancements that have been proposed as part of the Bus Safety Standard **EXP-1/ p.189-63**; **p.189-72**; **p.189-304**; Intelligent Speed Assistance **MISC-1/ p.1002**; **Day 18/ p.97 to 98**.

Recommendations

4.11 The Government should in future be open to the provision of subsidies to target specific enhancements of bus safety features. However in considering this question a full and complete cost/benefit analysis ought to be conducted to ensure that the subsidy is provided to promote a bus safety feature that will bring a corresponding improvement to bus safety. Resources should also be made available for the TD to conduct its own independent trials and/or assessments (with the assistance of independent consultants or otherwise) in order for such cost/benefit analysis to be conducted.

4.12 The setting up of a fund similar to London's Bus Safety Innovation Fund ought to be considered to drive bus safety innovation by the private sector.

5. ENHACEMENT OF BUS ACCIDENT DATA COLLECTION, INCIDENT REPORTING, AND TRANSPARENCY OF SUCH DATA

Current practice

5.1 General road accident data, which includes some high-level statistics in respect of bus accidents, is currently published annually by the TD: **Day 20/ p.91/ lines 3 to 10.** The source of this data comes from accident information compiled by the police through their data system, known as the "Case Management Information System or "**CMIS**", to which TD has access. The database maintained by the police goes into some detail about the cause and type of road accidents, but is not bus specific: **MISC-1/ p.124-556**. From the data in the CMIS, the TD conducts its own detailed bus accident analyses (**TD-5/ p.1731-1**), but these are not disclosed to the public on any systematic or regular basis: **Day 20/ p.91/ line 7 to 10.**

5.2 Separately, in the bus safety section of each FB Operator's annual FPP, the FB Operators provide to the TD detailed analyses of bus accident data collected by the Operators ***individually*** in respect of their own franchises, with the analyses split into a number of different categories (see for example, **KMB-12/ p.5011-5041**). The analyses are based on the dataset kept by each individual Operator. A number of issues arise out of the analyses contained in these sections and the data upon which they are based:

(i) Because the FPPs (in its entirety) were previously considered to be confidential, these very helpful analyses of bus accident data had never (prior to this Inquiry) been disclosed to the public: **Day 1/ p.126/ line 19 to p.127/ line 10**;

(ii) The TD has no direct access to the raw data underlying the Bus Operators' analysis. There is no requirement on part of the FB

Operators to provide systematic or regular reporting of individual bus accidents or incidents (save for major accidents for which a formal investigation report would have to be submitted): **Day 20/ p.120/ line 8 to p.121/ line 23**.

(iii) The TD have no requirements that relate specifically to the collection of accident data (i.e. the fields of input, the level of detail of the records kept, etc): **Day 20/ p.134/ line 9 to 12**.

(iv) Each FB Operator ***individually*** collects its own data with its own systems and procedures, and conducts its own analyses upon guidance from the TD as to what needs to be included in the FPP analyses (see, for example, **TD-5/ p.1728**, a letter from the TD to KMB as to the type of analyses required to be included in the FPP).

(v) Although the police and each FB Operator collect ***similar*** types of accident data, neither is provided with, nor does either have access to, the other's data. The fields of data entry in respect of individual accidents are not aligned amongst the FB Operators nor with the police. The TD receive ***both*** sets of data (in the case of the FB Operators, only the analyses is received but not the raw data), but no comparison or matching of the two data sets has been conducted by the TD: **Day 20/ p.122/ line 3 to p.123/ line 8**.

5.3 It is submitted that the current position gives rise to issues of:

(i) Accuracy, reliability and consistency of bus accident data ***collection*** across different stakeholders;

(ii) Transparency of bus accident data and analyses conducted based upon a reliable and consistent dataset.

Overseas practices and recommendations from experts

5.4 In London, there are two main data sets for bus accident data: a ***single*** Incident Reporting Information System ("**IRIS**") used by ***all*** bus operators for reporting ***all*** incidents relating to their operational activities; and STATS19 (gradually being replaced by Case Overview and Preparation Application, "COPA"), used by the police to report road traffic collisions. A complex matching exercise is conducted to ensure better consistency and reliability of each data set: **MISC-3/ p.1191 to 1192**.

5.5 TfL has a transparency policy which starts with the presumption that all information should be made publicly available unless there are legitimate reasons for not doing so. With the information from the two data systems, every quarter, TfL is able to publish (i) data on ***all*** road traffic collisions involving death or personal injury, (ii) comprehensive data in the form of an excel spreadsheet on ***all*** reported incidents occurring across the network (e.g. collisions; slips, trips and falls; and assault), and (iii) a bus safety dashboard providing a narrative of the published data and trend analysis with previous quarters: **EXP-1/ p.141**.

5.6 By contrast, the TD is ***not*** in a position to set out the details of each individual incident involving or affecting the franchised buses. Under the current system, the TD is at most able to keep track of and publish the details of *fatal* accidents (i.e. information on the route, operator, victim and driver): **Day 20/ p.128/ line 16 to 25**.

5.7 Looking at the London model, there are clearly advantages in establishing a common incident-based reporting system for ***all*** FB Operators. Firstly, it allows for more accurate analyses of problem areas, using the raw data submitted by Operators ***across the network***, which can be cross-matched with data from

other sources (e.g. police data). With more reliable data sets, the TD and FB Operators will be better placed to identify specific problem areas, take specific action to address those safety problems and devise safety indicators targeted at those areas. The TD has expressed willingness to initiate such developments in the collection and use of bus accident data: **Day 20/ p.134/ line 13 to p.135/ line 6**.

5.8 Secondly, the availability of such data sets to the public is obviously conducive to improving ***transparency***. The advantages of greater transparency of data are self-evident (e.g. accountability, leading to a sharper focus on safety), and were raised on multiple occasions in the expert evidence, both in the context of outlining the overseas models and in their recommendations for Hong Kong: **EXP-1/ p.67**; **p.153/ section 8.4**.

Recommendations

5.9 The TD should give consideration to:

(i) Requiring FB Operators to submit data relating to all accidents occurring across the network, as a contractual requirement or otherwise;

(ii) Developing a common reporting system to be used by all FB Operators for this purpose;

(iii) Designing the system in a way that allows for the cross-matching of FB Operator and police data to ensure reliability and consistency; and

(iv) Publishing comprehensive bus accident data and trend analyses on a regular basis for greater transparency.

6. DEDICATED BUS SAFETY TEAM WITHIN TD

6.1 In the course of the Inquiry, the TD itself accepted that it is the entity responsible for driving and enhancing bus safety: **Day 10/ p.93 to 94**. Despite this, no single team in TD is responsible for bus safety, with the responsibility spread between 4 units: **Day 19/ p.94 to 96, 108**. "*No set regular meeting between those units*" were held between those units: **Day 19/ p.180/ line 6**.

6.2 It is submitted that the lack of a dedicated unit to focus on bus safety or bus safety enhancements is reflective of the lack of emphasis on bus safety. It would appear that the TD agrees with this, since the TD informed the Committee towards the end of the Inquiry that the TD was in the course of securing funding for the establishment of a new team dedicated to transport technology: **Day 19/ p.10/ line 1**; **Day 19/ p.96/ line13**.

6.3 In Victoria, the independent Transport Safety Director is responsible for overseeing bus safety which involves the implementation of safety policies and regulations, and to ensure compliance by bus operators: **Day 16/ p.91 to 92; 106 to 109.**

6.4 Creating of an independent position of Transport Safety Director has been recommended by the Melbourne expert: **EXP-1/ p.99 to 100**; **Day 16/ p.116 to 117**. The London expert also showed some support for an independent regulator: **EXP-1/ p.156**; **Day 18/ p.108**.

Recommendation

6.5 Whilst the circumstances in Hong Kong are different from that in Australia, it is submitted that bus safety in Hong Kong would benefit from an increased focus and emphasis on bus (or public transport) safety that would follow from the establishment of a dedicated safety team headed by a senior government

official. Such a team ought to take on the task of driving not only technological advancements in bus safety devices or initiatives, but also other aspects related to bus safety such as considering and implementing measures aimed at increased regulation and monitoring of FB Operators as outlined in this report.

7. REGULAR AND SYSTEMATIC COLLABORATION BETWEEN STAKEHOLDERS AND TD ON IMPROVING BUS SAFETY

7.1 Prior to the Tai Po accident, there was no systematic and regular platform for TD, the FB Operators and other stakeholders to regularly share information and hold discussions specifically on bus safety: **Day 19/ p.119 to 121**.

7.2 In the wake of the Tai Po accident, the Working Group was established to review and study measures with a view to further enhancing bus safety: **Day 1/ p.78 to 79**; **Day 19/ p.97 to 99**; **KMB-12/ p.4869-2**. The Working Group was originally intended to function for 3 months only with a limited scope of work: **KMB-12/ p.4869-2**; **KMB-12/ p.4869-9**; **Day 19/ p.129 to 132, 140 to 141**. At least one FB Operator considered the Working Group to be "*an effective platform for discussing bus safety related issues amongst all franchised bus operators and [TD]*": **KMB-12/ p.4945**.

Recommendations from experts

7.3 Establishing of a Standing Committee on Bus Safety recommended by the Melbourne expert: **EXP-1/ p.94 to 95**; **Day 16/ p.111 to 112**. Such a body would be akin to the Bus Operator Forum and its sub-groups in London where managing directors of bus companies and senior managers from the TfL meet regularly to discuss issues of common interest, including safety: **Day 18/ p.82 to 83; 90 to 91**.

7.4 In particular, the said body should serve the following purposes:

(i) To encourage and create a culture of sharing of knowledge and best practice amongst FB Operators: **EXP-1/ p.136**; **EXP-1/ p.139/ section 5.7**; **Day 18/ p.82 to 90**;

(ii) To review and evaluate the latest technological advancements specifically relevant to bus safety: **EXP-1/ p.94 to 95**; and

(iii) To enhance collaboration and ensure ongoing dialogue between stakeholders involved, including the FB Operators, TD, bus manufactures, trade unions, etc.: **EXP-1/ p.154/ section 8.7**.

Recent developments and recommendations

7.5 The recommendation by the experts (at paras 7.3-7.4 above) to establish a permanent body or a Standing Committee has been accepted by TD: **Day 19/ p.82 to 83**. Actions have been taken by TD for the Working Group to be made permanent: **Day 19/ p.8/ line 16**; **Day 19/ p.161 to 162**; **TD-6/ p.2075 to 2076/ para 23**.

7.6 It is recommended that the Working Group should consider inclusion of a wider spectrum of stakeholders including trade unions, bus manufacturers, and the Road Safety Council ("**RSC**"), etc.: **Day 16/ p.111**; **114 to 115**; **Day 19/ p.166**; **Day 21/ p.139 to 140**; **MISC-2/ p.820-105**. While the inclusion of all stakeholders in every single meeting might not be necessary or beneficial (see, the concern over pre-mature disclosure: **CTB-1/ p.106**), the Working Group should nevertheless proactively involve relevant parties where appropriate. In particular, the inclusion of RSC would enhance independence and transparency of the Working Group: **Day 19/ p.178 to 179**.

7.7 The scope of work of the Working Group should also be expanded to include the monitoring and review of developments in respect of bus safety in other jurisdictions, as well as other issues of bus safety that may not be directly related to advancements in bus safety technology (such as illegal parking at bus stops, initiatives in the monitoring of bus captains, etc). There is no good reason why the agenda or scope of this now permanent Working Group should restrict itself to certain aspects of bus safety and not others. The Working Group's agenda should be under regular review: **Day 16/ p.120 to 123**; **Day 19/ p.165**; **TD-6/ p.2075 to 2076/ para 23**.

SECTION B – OTHER RECOMMENDATIONS

8. ISO 39001

8.1 Insofar as safety systems are concerned, the requirements imposed are mainly statutory requirements: **TD-1/ p.34/ para 3**. However, legislation does not require accreditation and since there is no uniform standard, FB Operators have each developed their own systems of safety management: **KMB-12/ p.4908-9/ para 33**. There is no independent audit conducted as to whether the road safety ***system*** adopted by each FB Operator is reliable or sufficient.

8.2 Some FB operators have voluntarily obtained ISO certifications in respect of other aspects of their operations – see for example KMB's accreditation under ISO 9001 for its Quality Management Systems and ISO 14001 for its Environmental Management Systems: **KMB-9/ p.3773**. See also KMB's adoption of a safety system built upon ISO 9001 covering the four main pillars of plan, do, check, act: **Day 12/ p.69/ line 12**; **KMB-8/ p.3378 to 3401**.

8.3 It has been recommended by experts and interested parties, such as the Community on Road Safety, that some accreditation system should be established, to ensure the existence of a reliable safety ***system*** within the operations of each FB Operator: **EXP-1/ p.100; MISC-2/ p.772**. In response to queries made during this enquiry, TD has expressed willingness to explore the adoption of ISO 39001 or other international standards that relate to road safety systems: **TD-5/ p.1657/ para 25**.

Recommendations

8.4 The TD should explore the mandatory adoption of internationally recognized standards for road safety systems (such as ISO 39001) by FB Operators.

9. BUS CAPTAIN TRAINING

9.1 Prior to this Inquiry, the TD did ***not*** regulate the training of bus captains. No training requirements are set out in the franchise agreements or in legislation. The FB Operators ***individually*** designed the training frameworks currently adopted and ***voluntarily*** made two performance pledges: first, to provide training for all new recruits, and second, to provide training for in-service bus captains once every three years: **Day 1/ p.106/ line 18 to p.107/ line 23**. The TD does not monitor such training by way of independent checking, and is reliant on annual reports from FB Operators as part of the bus safety chapter in the FPPs.

9.2 Until as recently as May this year, when the first hearing of this Inquiry was held, the TD had not issued ***any*** directives as to how FB Operators should conduct their training: **Day 1/ p.133/ line 2 to 17**. Each FB Operator was responsible for the training of its own bus captains: **Day 3/ p.87/ line 16 to p.88/ line 16**.

9.3 This is to be contrasted with the practice in overseas jurisdictions, where the government takes on a greater role in the training of bus captains. For example, Singapore's government provides the training of bus captains (**Day 3/ p.108/ line 10 to 13**), and Melbourne contracts include specific requirements on driver training (**EXP-1/ p.78**).

9.4 It would appear that, during the course of this Inquiry, the TD has come to recognize the need to enhance safety by mandating and monitoring bus companies' training arrangements. Guidelines setting out a common framework for the delivery of bus captain training have been in discussion since the Tai Po accident, and have been brought before the Working Group: **Day 1/ p.133/ line 20 to p.135/ line 19**.

9.5 A Practice Note on Training Framework for Franchised Bus Captains ("**Practice Note**") was promulgated in August, with the intention of laying out ***industry-wide standard practices*** to be adopted by all FB Operators from October this year: **TD-1/ p.470**. In particular, the Practice Note ***standardized*** five modules for the training courses and their respective weightings, for adoption by ***all*** FB Operators, in line with the Working Group suggestions. These are: (a) safe driving and road safety; (b) knowledge of on-vehicle device and facilities; (c) handling of incidents or emergencies; (d) customer service; and (e) knowledge of laws, company routes and occupational health: **TD-5/ p.1794/ paras 4.13 to 4.14**.

9.6 The Melbourne expert has expressed approval of the promulgation of this Practice Note, stating that it would "*help to ensure that all operators are aware of desired standards and have a means of conveying these standards to their Bus Captains*". He further recommended that the "*training framework that is developed needs to include a* ***specific component*** *on* ***fatigue management***" (emphasis added): **EXP-1/ p.90**. Fatigue management forms part of Melbourne's training programmes (**Day 16/ p.184/ line 2 to 5**), but has not been included as one of the five required modules set out in the Practice Note.

9.7 Apart from setting out a standardized training framework, the Working Group further considers that the TD's monitoring role should be strengthened, for example, by requiring the submission of regular reports and then taking follow-up actions, as well as by conducting random checks on the training programmes of each FB Operator: **TD-5/ p.1798/ para 4.27**. The previous practice was for FB Operators to submit reports to the TD annually for monitoring: **Day 1/ p.107/ line 1 to 17**.

Recommendations

9.8 A Practice Note with the objective of aligning the training arrangements of different FB Operators is to be welcomed. The Government should consider:

(i) Reviewing the Practice Note on a regular basis, in accordance with paragraph 3 of the Practice Note: **TD-1/ p.470**;

(ii) Monitoring compliance with and effectiveness of the standardized training framework, as recommended by the Working Group, through the submission of regular reports from FB Operators and the conducting of random checks: **TD-5/ p.1798/ para 4.27**; and

(iii) Updating the Practice Note as recommended by the Working Group, to cater for operational needs and safety standards: **TD-5/ p.1799/ para 4.28**.

9.9 The Government should also consider updating the Practice Note by including a specific component on fatigue management.

10. USE OF BLACKBOX DATA FOR REAL TIME OR DELAYED MONITORING

Current requirements from TD

10.1 The installation of black boxes on franchised buses became mandatory in 2003: **TD-5/ p.1597**. The basic minimum specifications for a black box was first issued in 2003, see: **TD-5/ p.1598**.

10.2 Since January 2018, FB Operators have been required to submit to TD records of random checks on the operational data recorded in their black boxes on a monthly basis: **TD-1/ p.50/ para 40(a)(i)**; **TD-1/ p.87 to 89**; **TD-4/ p.1480**. For a template of such record, see: **TD-4/ p.1482**; a sample record submitted to TD, see: **TD-4/ p.1020**. The records are reviewed by TD on an annual basis: **Day 2/ p.42 to 44**.

10.3 Despite being a standard device installed on all buses, the black box has not been used to its fullest potential for the monitoring and managing of bus captains' driving behaviour. For example:

(i) Transmission of data from the black box to the headquarters of the FB Operators has been subjected to a 30 second delay by the choice of the FB Operators: **Day 6/ p.157**; **Day 8/ p.110 to 111**. There has been little effort in fully exploring real-time monitoring or analytical capabilities of the information collected by the black box: **Day 12/ p.87 to 89**; **Day 4/ p.27 to 29**.

(ii) TD only required reporting of overspeeding when the bus was travelling over 70 km/h (see the minimum specifications: **TD-5/ p.1598**; **1807**). Such configuration would be unable to capture speeding on a road section with a speed limit of 50 km/h as long as the bus was travelling below 70 km/h. In such cases of speeding, there would be no ***automatic*** generation of exception reports or real-time alert to the driver unless manual configuration had been done: **Day 12/ p.104 to 106**; **CTB-1/ p.56**.

(iii) Without the aid of a digital map (see above at para 1.4(iii)), FB Operators had to manually conduct a matching exercise across different datasets in order to identify the corresponding speed limits of individual road sections in order to generate an exception report for speeding: **TD-**

1/ p.164/ para 32(a). The process could take up to days and required substantial manpower resulting in substantial delay in monitoring and addressing undesirable driving behavior of bus captains (see for example the KMB process - **KMB-1/ p.167 to 168; Day 13/ p.31 to 34**)

(iv) Although the black box is capable of recording all instances of sudden acceleration and harsh braking, it has not been the practice of FB Operators to generate incident-based reports: **KMB-1/ p.573/ para 6 to 7**. Further, the practice of KMB has been to create speeding, harsh braking or sudden acceleration exception reports including only individual drivers whose durations of such behaviour had exceeded a certain pre-set accumulated time: **KMB-1/ p.571 to 573/ para 2(B), 3(B)** – see for example: **KMB-1/ p.367 to 373**; **KMB-12/ p.4836 to 4837**; **4842 to 4847**; **4851 to 4855**.

(v) Even in the context of generating an exception report after a driver had ***accumulated*** a pre-set amount of harsh braking, the defining ***threshold*** deceleration figure as set by the TD was 0.4G (since 2006 – see: **TD-1/ p.495/ para 4**; **TD-5/ p.1856 to 1861**). According to the TD, this threshold was selected because of studies which identified that, at a deceleration figure of 0.4G, more than 95% of ***seating passengers*** would remain seated and not be thrown out of their seats: **TD-5/ p.1880**; **Day 20/ p.21 to 22**. This threshold does not appear to be satisfactory as figures quoted in the ***same*** study identified by TD would appear to suggest that ***standing*** passengers holding onto supports would lose their balance at a deceleration figure of around 0.23-0.24G: **TD-5/ p.1887**. The threshold deceleration of 0.4G as specified by the TD would not appear to sufficiently take into account the interests of standing passengers, which comprise a significant portion of passengers in franchised buses – a matter which the TD themselves accepted when this was put to them in the course of the Inquiry: **Day 20/ p.22 to 23**.

Recent developments in Hong Kong

10.4 The basic minimum specifications for the black box was updated recently (in August 2018), see: **TD-5/ p.1807**. However, despite its recent revision, the 0.4g threshold for deceleration remained: **Day 20/ p.18 to 23**.

10.5 The Working Group has recommended the development of a comprehensive bus monitoring and control system ("**BMCS**"), which would be an integral system with positioning function, operational information monitoring function, and variable speed limiting function utilizing the geo-fencing technology. Some FB Operators have embarked on trials, focusing on speed limiting and real-time alerting: **TD-1/ p.405 to 406**; **TD-5/ p.1770 to 1772**. TD has indicated that it was securing funding for the engagement of a service provider to carry out independent trials for the evaluation of applicability and effectiveness of BMCS. See: **Day 19/ p.9**; **143 to 147**.

10.6 FB Operators are also required by TD to provide further information on event logs of the black box data, including vehicle speed, harsh acceleration, harsh deceleration. At present, there are no uniform thresholds for the event logs and generation of exception reports, see for example, thresholds adopted by KMB: **KMB-1/ p.572 to 573/ para 3; Day 12/ p.133 to 135**; by CTB and NWFB: **CTB-1/ p.26**. TD has demonstrated a willingness to look further into the matter. See: **Day 20/ p.113 to 117**. See also, exception reports by KMB: **KMB-12/ p.4836 to 4837; 4842 to 4847; 4851 to 4855**.

Recommendations

10.7 It is encouraging that TD has shown willingness to explore better ways to use the black box data for the monitoring and management of drivers' behaviour.

However, a more systematic change is recommended in order to maximize the utility of the black box and ensure using it to its fullest potential. In particular:

(i) Proper consideration should be given to enhance real-time monitoring (beyond merely alerting the driver) so as to allow for (a) ***prompt*** responses to problematic driving behaviors or patterns; and (b) more useful analytical feedback to the drivers as to their driving behavior or patterns. See, for example, the Greenroad system adopted in Singapore that has reportedly resulted in drop of accident figures by 50% and cases where drivers were deemed to be at fault by 70%[1].

(ii) TD should conduct proper research with a view to establishing a uniform threshold for reporting driver behavior incidents (such as speeding, sudden acceleration and harsh braking) that do not involve accidents. It is only when there is a standardized threshold that applies across the industry can any comparison of data from different FB Operators be meaningful.

(iii) TD should ensure ongoing reviews of advancements and updates to black box capabilities (through the Working Group or otherwise) to ensure that the latest technologies are being considered and adopted where appropriate.

(iv) TD should conduct a review into the threshold requirements for detecting and monitoring sudden acceleration and deceleration incidents (including the thresholds and methodology in identifying exception reports) with a view to improving the monitoring of bus drivers' driving behavior.

[1] www.straitstimes.com/singapore/transport/tracker-helps-bus-drivers-to-better-their-performance

11. COMPETITIVE TENDERING

11.1 Franchised bus services in Hong Kong are currently provided by five operators under six bus franchises: **TD-1/ p.72;** for the franchise granted, see: **TD-2/ p.321 to 495**. Franchise contracts generally run for 10 years and are typically renewed or extended on expiry: **TD-1/ p.73 to 74; 78**.

11.2 Franchises may also be granted following a **public** tender: s.5(3)(a) Public Bus Services Ordinance. However, the last public tender conducted was in 1998 and the franchised bus network has not been subjected to ***open*** competition since: **TD-1/ p.78/ para 12**. A number of tenders have been conducted for new routes but competition was restricted to existing local bus operators only: **Day 19/ p.16 to 19**; for the criteria used to evaluate tenders, see: **TD-1/ p.494/ para 2**.

Competitive tendering in other jurisdictions

11.3 In contrast, all urban bus routes are open for competitive tendering in London: **Day 18/ p.20/ line 18**. Contracts run for 5 years with the possibility of a 2-year extension, after which, the relevant route will be subjected to competitive tendering again: **EXP-1/ p.129**. The London bus network is currently dominated by 6 large bus groups which amount for around 94% of the bus network: **EXP-1/ p.126**. The route-based tendering system is said to have more flexibility as compared with an area-based franchising system: **Day 18/ p.42/ line 17**. See details of the process: **EXP-1/ p.189-0-1**.

11.4 The Melbourne model on the other hand adapts a mix of competitive tendering and negotiated contracts: **EXP-1/ p.7/ section 2.2**. Two-thirds of the bus network operates under negotiated contracts while the remaining one-third is subjected to competitive tendering of a single contract across a defined area. The area-based contracts run for 7 years. See: **Day 16/ p.22 to 23**.

The impact of competitive tendering on enhancement of bus safety

11.5 The consistent view amongst the two experts is that a conventional competitive tendering system brings no advantages relating specifically to safety: **Day 16/ p.54/ line 17**; **Day 18/ p.63/ line 8**. Although safety currently forms part of the evaluation process for Hong Kong tenders (**TD-1/ p.494/ para 2**), the prospect of open competition is too remote to have any real impact on enhancing safety: **MISC-3/ p.1376**.

11.6 Professor Stanley opined that there might be potential safety risks associated with a competitive tendering system, such as deferred maintenance: **Day 16/ p.50/ line 9 to 18**; **Day 16/ p.53 to 55**. The lack of assurance of a continuing contract for FB Operators might deter long-term investments which can potentially have a negative impact to safety: **CTB-1/ p.105**. The London expert also recognized that a cost-focused model may discourage innovation by individual operators: **EXP-1/ p.151/ section 8.2**. These downside risks may be mitigated by the imposing of uniform minimum safety standards (e.g. on vehicle specifications, maintenance, etc.), by regulations, or through contractual requirements: **Day 16/ p.51 to 52**; **Day 18/ p.66 to 67**.

11.7 Professor Stanley opined that where the bus network operates under a renewable negotiated franchise/contract regime (as in Hong Kong), it is crucial for operators to be under an appropriate amount of performance pressure. Without the threat from a competitive process, operators in Hong Kong are subjected to insufficient incentive to improve and pressure to perform when compared to those in other jurisdictions. See: **EXP-1/ p.73 to 74/ para 3.3.1**; **EXP-1/ p.84 to 87**; **MISC-3/ p.1375**.

11.8 A more competitive market has been recommended as it focuses operators on improving performance in all respect, including health and safety. Regular

tendering processes also encourages the authority to proactively evaluate performance. See: **EXP-1/ p.151/ section 8.2**; **Day 16/ p.63 to 64**; **MISC-3/ p.1376**. The TD has shown a willingness to consider expanding the role of competitive tendering: **Day 19/ p.25 to 27**.

Recommendations

11.9 The expansion of competitive tendering for new routes is to be encouraged. However, what is needed to enhance bus safety is not a wholesale change from the existing negotiated franchise model to a fully competitive tendering model, but rather an amendment of the existing model to add elements of:

(i) Added performance pressure that relates specifically to bus safety, such as the use of safety performance indicators as described in sections 2 & 3 above;

(ii) A more proactive and robust monitoring and evaluation regime, such as improvements in bus accident data collection and analysis (section 5 above), the setting up of a dedicated bus safety team (section 6 above), more systematic and proactive discussions on bus safety amongst stakeholders (section 7 above), adoption of internationally recognized safety systems (section 8 above), and making better use of the available black box data (section 9 above).

Dated the 28th day of November 2018

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CLOSING SUBMISSIONS OF COUNSEL FOR THE INDEPENDENT REVIEW COMMITTEE

PART TWO

PART 2

12. GRANTING AND RENEWAL OF BUS FRANCHISES

Recommendations

12.1 Proper consideration should be given to put in place a trial scheme of inviting public tenders for operation of new bus routes serving new development areas *(such as those in Lantau viz Tung Chung New Town Development [short/medium term] and East Lantau Metropolis [Long-term])* to induce improvements to existing franchised bus services especially in respect of service reliability and bus safety through competitive tendering (for example, introducing an incentive/penalty system as stated above, similar to the bus contract system of the TfL that will enhance service reliability with sufficient journey time catered for each bus trip thereby ensuring that bus captains can have proper rest breaks between trips to alleviate fatigue).

12.2 A "mid-term review" as provided in Clause 32(1) of respective franchise agreements be conducted in a systemic manner, say at biennial intervals, by the Commissioner for Transport, to determine whether the delivery of a proper and efficient service, including overall bus safety by the franchisee has been maintained to her satisfaction.

12.3 For negotiation of renewal of existing franchises, consideration should be given to the overall performance of the franchisee in sustaining and enhancing bus safety. Stringent requirements should be stipulated in the franchises to ensure that the safety requirements are duly met in considering franchise renewal.

12.4 In respect of the New Lantao Bus Company where a substantial number of non-franchised buses are hired to cater for seasonal/weekend upsurge in

passenger demand, TD should impose stringent requirements consistent with those for franchised buses with regard to safety facilities and equipment required to be equipped on buses, driving hours and rest time for non-franchised bus drivers.

13. ENHANCING THE MONITORING SYSTEM OF BUS FRANCHISES

Recommendation

Improving the collation and analysis of bus accident data

13.1 The checklist for compiling the Police's accident reports should be reviewed to take into more detailed account those casualties arising from passengers losing balance in order to facilitate analysis on whether the casualties are in respect of standing/alighting passengers losing balance or seated passengers, and for the latter, whether they are belted or unbelted if seat belts are provided.

13.2 Accident data should be made fully transparent as FB Operators are duty-bound to release the information impacting transport safety to the travelling public.

13.3 Trend analyses should be conducted at regular intervals jointly by the Police and the TD as to the causes of serious accidents involving fatalities/serious casualties with a view to making recommendations on focused areas that require attention and warrant the drawing up of proactive strategies to enhance bus safety for consideration by the Road Safety Council and Transport Advisory Committee.

14. ENHANCING THE MONITORING OF THE PERFORMANCE OF FRANCHISED BUS OPERATORS IN TERMS OF JOURNEY TIME

14.1 In 2015, the TD put forward a revised sanction mechanism in respect of the bus lost trips made by the FB Operators. The mechanism sets out the procedures and steps on the issuance of letters of different degrees of gravity (including Reminding Letter, Advisory Letter, Warning Letter and Serious Warning Letter) depending on the frequency, level of lost trips incurred and rectification actions taken by the FB Operators. The warning letters will make way for initiating further statutory sanctions under section 22 of the PBSO, such as a financial penalty, revocation of the operating right of a particular bus route or of its franchise in the event that no apparent improvement is made by the bus operator concerned without providing any reasonable explanation (**TD-1/ p.44**).

14.2 Since the implementation of the above mechanism in 2015, the TD has been monitoring the lost trip situation of the FB Operators and sent reminding letters, advisory letters and warning letter to FB Operators for rectification action and making service improvement. These FB Operators provided explanations to the TD and took actions, including deploying more stand-by bus drivers to fill up the shortfall, to improve the lost trip situation.

Recommendations

14.3 In vetting the schedule of services submitted by FB Operators, the TD should ensure that adequate journey time is catered for so that bus captains can take the needed rest break between trips and for bus captains on special shift, and that no less than 3 consecutive hours of rest time should be provided. The schedule of services should be reviewed by the TD at regular intervals, and if circumstances warrant, to suitably adjust the schedule to take account of longer journey times due to traffic congestion and changes in passenger patronage.

14.4 TD should require FB Operators to submit computerised reports to facilitate their monitoring of service delivery, compliance with the guidelines on duty hours, rest and meal breaks. The black box data can be further utilised to monitor the lost trips and the rest time provided to bus captains.

14.5 FB Operators should be required to set up dedicated computer terminals to enable TD to have real-time compliance monitoring of service delivery including delayed and lost trips, fleet and staff deployment (including driving duration and rest hours).

14.6 In the interim, and pending the setting up of a dedicated computerised system to facilitate TD to conduct real-time compliance monitoring, TD should stipulate a more representative sampling size for the independent auditor to check:

(i) compliance with the Guidelines on duty hours, driving hours, rest breaks and meal times (currently only a very small sample of KMB drivers are sampled); and

(ii) lost trips and delayed trips and how they are rectified (avoiding manipulation of compensatory trips that do not provide the full schedule of service and which would compromise the rest break of bus captains)

14.7 FB Operators should inculcate a safety culture at all levels within their bus company to ensure that due attention is given to safety in duty rostering for bus captains.

15. RESTRUCTURING THE CURRENT PASSENGER LIAISON GROUP

Recommendations

15.1 It is proposed that the existing passenger liaison group be restructured to make it a formal forum to gather feedback from the community to include nominated representatives from respective district councils, in addition to walk-in participants (under the current mode of operation), such that the performance of FB Operators can be better monitored and gauged and progress of follow-up actions on issues raised at previous meetings can be monitored.

15.2 The methodology and the prescribed form for collecting complaints received by the Transport Complaints Unit of THB relating to franchised buses should be reviewed to enable the capturing of service reliability (which has a bearing on the provision of proper rest breaks) and aberrant driving behaviour of bus captains to facilitate a more useful analysis of the complaints.

16. QUALIFICATIONS AND REFRESHER / CONTINUAL TRAINING FOR FULL OR PART-TIME BUS CAPTAINS

Background checks

16.1 Currently, there is no statutory requirement that the FB Operators conduct background checks when processing applications for the position of bus captain. It is noted that all the FB Operators conduct their own background checks before offering employment. Bus captain applicants are requested to self-declare any criminal record to the FB Operators in making their applications. The FB operators will check, among others, the applicants' Certificate of "Previous Conviction Issued under Section 75(5) of the Road Traffic Ordinance (Cap 374) for traffic conviction records, as well as the

applicants' pre-employment medical check-up records. The FB Operators will take into account records of the applicants together with other factors in considering whether the applications should be accepted having regard to their companies' human resources policies. For example, none of the FB Operators will offer employment to applicants with any of the following records:

(a) unfit in the pre-employment medical checkup;

(b) guilty of dangerous driving;

(c) guilty of driving under the influence of drink or drugs; or

(d) guilty of driving in a motor race or speed trial on a road racing[1].

16.2 All FB operators, except the New Lantao Bus Co. (1973) Ltd. ("**NLB**")[2], will also check the driving offence points of their bus captain applicants. For example, the KMB and LWB will not offer employment to applicants who have incurred 9 or above driving offence points in the recent 3 years, whereas the CTB and NWFB will not offer employment to applicants who have incurred 9 or above driving offence points in the recent 2 years (**TD-1/p.135/paras 4-6**).

16.3 Besides, KMB and LWB will not offer employment to applicants with records of disqualification of driving licence while CTB and NWFB will not offer employment to applicants with records of disqualification from holding a driving licence in the recent 5 years; or disqualification from holding a licence in the preceding 6^{th} to 10^{th} year[3] for more than once or where such disqualification period was more than 3 months. Furthermore, CTB and NWFB will not employ bus captains with an unsatisfactory driving history revealed from a background check.

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[1] (**NLB-1/p.23**)

[2] If the applicant is found 8 points or more is deducted in the last 2 years, the management will go in details of their offence type and may not consider their job application (**NLB-1/p.23**). Currently, NLB do not have a policy like KMB or CTB that once the applicant have certain points deducted, they will not be hired (**Day 5/p. 19 to 20**). In their oral testimony, NLB expressed they will consider adopting such a policy (**Day 5/p. 20**).

[3] Certificate of Previous Conviction Issued under Section 75(5) of the Road Traffic Ordinance (Cap. 374)

Follow up actions on traffic convictions and improper driving behaviour

16.4 Generally, if a serving bus captain has been involved in traffic accidents or has violated traffic laws in his driving duty, it is the existing practice of the FB Operators to record such incidents and arrange for the bus captain to attend driving improvement courses where necessary.

16.5 However, there is no statutory requirement for the FB Operators to take action if the bus captains contravene traffic regulations or are convicted of committing traffic-related offences. It is noted that the TD will monitor the FB accidents and will follow up with FB operators upon occurrence of FB accidents (**TD-1/p. 110**).

16.6 For other situations where a rising trend of violation of traffic laws (such as improper driving behaviour) by bus captains is revealed, the TD will follow up with the FB operators in their regular meetings and urge the FB operators to work out measures to handle such cases.

16.7 The FB Operators make use of the black box which is currently a standard feature of franchised buses and is installed on each FB, to monitor the speed and behaviour of buses on roads. The FB Operators retrieve the information of the black boxes for monitoring the driving behavior of their bus drivers regularly and on a needs basis after an accident or in response to a passenger complaint. If it is found that the bus captains' driving behaviour is improper (such as speeding), the FB operator will take appropriate follow-up action including issuance of advice/warning to the bus captain concerned, arranging for the bus captain concerned to attend a driving improvement course, etc.

16.8 The TD has requested all FB operators to submit on a monthly basis the results of random checks on the operational data recorded in the black boxes and the

corresponding follow-up actions. The TD will only review the results of random checks to ascertain that the FB operators have been monitoring the driving behaviour of their drivers and have taken/will take follow-up action against those drivers with improper driving behaviour (**TD-1/p. 136/para 8**).

Re-training in cases of improper driving behaviour

16.9 Each FB Operator has established its own internal practice or guidelines on re-training requirements for bus captains who have committed certain types of traffic offences/accidents. For instance, depending on the nature and severity of the incident, the FB Operators may arrange for half-day to two-day driving improvement training for bus captains who have been engaged in improper driving behavior or attitude as revealed in traffic accidents/offence, or by complaints or as a result of regular monitoring by the FB operators with the aim of reinforcing their driving skills, enhancing their safety awareness and fostering good driving behavior.

16.10 As an example, KMB has an Eco Driving Score Formula system (**KMB-1/p. 357-360**): for each journey or trip, the bus captain will tap his card at the terminus at the beginning and end of the journey. The information will display twice to the bus captains showing the score. The score will display green, amber or red colour based on four criteria including excessive idling, harsh braking, sudden acceleration and speeding (**Day 11/p. 77; Day 12/p.123**). The tapping of the card will inform the bus captains of their performance so they can improve their driving techniques (**Day 12/p. 119-123**). According to KMB, for the week of 15 to 22 July 2018, there were about 69,824 cases of green, 800 plus cases of amber and 8 cases of red (**Day 12/p. 122**). However, under the current system of KMB, where a driver has been constantly speeding in a 50km/hr speed zone but travelling under 70 km/hr, he would still receive a green rating (**Day 12/p.122-123**). The IT Department keeps a list of repeaters with a high frequency of relapse. In such cases, the Training and Quality

Assurance Department will provide training (**Day 11/ p. 78**).

16.11 The TD does not impose any uniform guidelines as to how to detect or monitor improper driving behaviour amongst all five FB Operators.

16.12 With regard to improvement training, the FB Operators are left to decide on their own the length of retraining and the assessments to be conducted after the remedial training.

16.13 Since the Tai Po accident, KMB has stopped recruiting any new part-time bus drivers (**KMB-1, p.140**). The percentage of part-time captains in terms of their total captains was only 3 to 4 percent after that change in February (**Day 13, p.139 line 6-10**). An investigation committee was set up by KMB after the Tai Po accident to find out how outside employments might affect the drivers' work and whether they might have significant medical history which might affect their work, and also whether they have been convicted of dangerous driving in the past or have criminal conviction records (**Day 13, p.55**).

16.14 It is noted that the TD has stated that:

(i) there is room for better aligning the training practices for bus captains among FB Operators (**TD-1/p. 137**);

(ii) the TD has collaborated with the FB Operators to formulate a guideline setting out, among others, the key parameters on re-training requirements for all FB operators (**TD-1/p.137**);

(iii) the Working Group on Enhancement of Safety of Franchised Buses agreed that the TD should promulgate a practice note on training framework for FB captains (**TD-1/p.410, para 18**).

(iv) the FB operators have agreed to and will set up an internal monitoring and audit mechanism to develop key indicators to measure the effectiveness of the training system provided to bus captains (**TD-1/p.411/ para 21**).

(v) the TD has recently (in August 2018) issued a practice note to FB operators in respect of the training for bus captains to align the training arrangements of different FB Operators and to lay down a common framework of the training system for their bus captains for phased implementation from October 2018 (**TD-1/p. 435**; **p. 471-472**).

16.15 However, the Practice Note simply refers to the fact that remedial training should be provided to bus captains in four categories, *viz.*

(1) those with improper driving behaviour repeatedly detected from black box data or other sources like plain-cloth inspections;
(2) those who have involved in serious traffic accidents;
(3) those persistently committed the same traffic offence; and
(4) those who have accumulated a certain number of driving offence points (**TD-1/p. 472/ para 6**).

16.16 However, no similar document has been issued on the monitoring of bus captains' driving behavior.

16.17 It is noted that in Singapore, as part of their contractual requirements, the bus operators are required to submit their Safety Management Plans to the LTA to demonstrate their ability to ensure safe and efficient operations of the bus services. One of the proposed plans includes ensuring safe and comfortable driving by bus captains.

16.18 To inculcate safe driving habits, the Singapore Bus Academy ("**SGBA**") conducts a module on Safe Driving Techniques as part of the Enhanced Vocational Licence Training Programme, which all newly hired bus captains are required to attend. They also have the Customer Service Improvement Programme which is another remedial course designed for bus captains with poor customer service records and a Service Literacy which seeks to equip bus captains with the necessary soft skills to handle difficult commuters (**EXP-1(C)/p.249-1, 249-11 to 249-13**).

16.19 Beyond the SBGA's training, all the public bus operators train their respective bus captains for at least 5 weeks before they are deployed on revenue services. They also have a mentorship programme for newly hired bus captains so that the experienced mentors can provide advice to the new ones (**EXP-1(C)/p.249-1, 249-11 to 249-13**).

Recommendation

16.20 It is recommended that the TD:

(1) issue a practice note to regulate the recruitment of bus captains to ensure that there are consistent criteria to assess the suitability of bus captain applicants, including vetting of previous driving offence records, psychological assessment of the temperament and suitability of the applicants;

(2) explore the feasibility of measures to inculcate safe driving habits similar to the system in SGBA;

(3) review the effectiveness of the practice note on training or retraining and put in place more stringent monitoring measures.

17. ENSURING THE PROVISION OF PROPER AND ADEQUATE REST AND TOILET FACILITIES

17.1 Under their respective franchise agreements, the FB Operators are responsible for the provision of ancillary facilities (including restrooms, toilets and rest facilities for their employees, including the bus captains and on-site regulators at bus termini or Public Transport Interchanges ("**PTIs**")) at their own expense (**TD-2/ p. 123; TD-5/ p. 1821**[4]). These facilities may be constructed by the construction agency of the PTIs or bus termini which form a part of the built-in structure in the project, for which the construction costs for the facilities will be reimbursed by the FB Operators. The facilities may be constructed / installed by FB Operators at designated locations within the bus termini, and the costs of which will be funded by the operators.

17.2 Various submissions have been received from Staff Unions of Bus Captains and District Councils expressing grave concerns about the lack of adequate toilet and rest facilities: (**Day 9, pp.45, 48, 51, 59; Day 11, p. 10)** (**TU-1(B), p.260-342 to p.260-346, English at p.260-346-1 to 260-346-15**). KMB depot management staff also stated they have encountered difficulties in pursuing their requests for provision of such facilities at certain bus termini or that certain locations required improvements (eg Kelvin Yeung, Tuen Mun depot manager of KMB (**FE-1, p.181-1 to p.181-2**) (**Day 9/p. 147**)). The lack of provision of such facilities hampered bus captains to take needed rest in course of driving duties and hence might suffer fatigue after prolonged driving with no proper resting facilities provided and accordingly, would compromise bus safety. KMB has provided a list of bus termini with toilet or resting facilities. Out of 229 bus termini, 104 have public toilets, 67 have chemical toilets and 51 with

[4] Clause 7 of the Franchised agreement provides that the Grantee shall, as far as practicable acquire, provide, adopt, maintain or modify to the satisfaction of the Commissioner for Transport such safety or service enhancement facilities, installations, fixtures, fittings, apparatus, or equipment on its buses as may be reasonably required by the Commissioner after consultation with the Grantee.

Facilities refer to, amongst others, bus regulator's offices and kiosks.

toilets installed by KMB (**KMB-1, p.206-210**).

17.3 Since December 2017, the TD has set up a task force on monitoring the provision or upgrading of public transport ancillary facilities at PTIs, bus stops and termini, and the representatives including the Lands Department ("**LD**"), Government Property Agency, Housing Department as well as FB Operators have been invited to attend the task force meetings for exchanging views and reviewing the process of applications (**TD-5/ p.1825; Day 21/ p. 2-3**). The task force was set up because there are some outstanding applications for provision of ancillary facilities and it took a long time to process the applications. This task force aims to take the lead to invite the departments concerned and FB Operators to have a face-to-face discussion to find out how they can expedite the problems encountered in assessing the applications (**Day 21/ p. 3**).

17.4 In general, at the planning stage of PTIs and bus termini, TD will liaise with FB Operators, as appropriate, about the requirements for the provision of the ancillary facilities. For facilities that FB Operators decide to construct and provide on their own, TD will liaise with them to ensure that the agreed building plans are forwarded to the relevant construction agencies (eg ArchSD or HD) for incorporation into the final termini design, and make arrangements for the handover of the facilities to the FB Operators concerned before opening of the PTI or bus terminus.

17.5 In some cases when a new PTI or bus termini is planned for a new bus network at the new infrastructure or development areas, it is common that the FB Operators will not be identified at the planning stage. For such cases, TD should reserve space with associated ducting facilities at appropriate locations of the PTI or bus terminus for laying of electricity cables / telephone lines, which will eventually serve the regulator's office and/or restrooms for bus captains by FB Operators.

17.6 As of September 2018, 264 (or 89%) out of the 296 PTIs and bus termini were provided with ancillary facilities in the form of regulator's kiosks/office or restrooms for bus captains. For the remaining 32 bus termini, no such facilities could be provided due to site constraints, such as a narrow pavement or lack of electricity supply, or neighbourhood objection etc.

17.7 According to TD's records, nearly all of the 296 PTIs or bus termini are provided with toilet facilities with a walking distance of 3 to 7 minutes (including public toilets in the vicinities of the PTI or bus termini or nearby shopping malls). For 285 (96%) of the PTIs or bus termini, toilets are located at or within a walking distance of 3 minutes, while for the remaining 11 (or 4%) PTIs and bus termini, toilets are located within a walking distance of 4 to 7 minutes. (**TD-5/p. 1823**)

17.8 Nevertheless, it is said that the bus captains of the concerned bus route(s) operating at these PTIs or termini could use the facilities provided at the other termini of those route(s).

17.9 The FB Operators have submitted applications to the TD for enlargement of the existing or provision of additional regulator's kiosks or restrooms in PTIs and bus termini on a temporary basis to suit the needs of bus captains.

17.10 Currently, the LD has delegated its authority under Land (Miscellaneous Provisions) Ordinance (Cap. 28) to TD for processing FB Operators' applications for installation of ancillary facilities of a size not exceeding 4.62m^2 (base area) and 7.09m^2 (roof area) on unleased and unallocated Government land. This delegation of power was effected on 25 September 2002 (**TD-1/p. 510**).

17.11 For over-sized facilities, FB Operators have to submit applications to the LD direct; the sites, if approved, would normally be granted by way of a short-term

tenancy. It is noted that the TD explained that the problem lies in the fact that it is not delegated to approve the size of such facilities and the LD has the standing procedures to process the application. It was suggested that in order to improve the efficiency, the LD do explore whether the delegation could be provided to the TD to approve such applications (**Day 21/ p.4**).

17.12 For those covered PTIs which have been assigned to the Financial Secretary Incorporated, the FB Operators would normally submit applications to Government Property Agency which will stipulate the conditions in the tenancy agreements, for provision of bus regulator offices, toilets and restrooms for bus captains. For PTIs and bus termini falling in the Housing Department or Link Reit areas, FB Operators will need to submit separate applications to them direct for approval.

17.13 In the course of the hearing, KMB complained about the lack of toilet or resting facilities within the new West Kowloon XRL Station bus terminus and a lack of consultation or planning beforehand [5] when this bus termini was built (**MISC-3/ p. 1275 to 1277; Day 15, p. 65; Day 21, p. 35 to 39**). During the visit by the Chairman and the staff of the Secretariat on 3 October 2018, it was discovered that KMB had put seven structures inside the bus terminus located on the pedestrian pavements (**MISC-3/ p. 1275-1286**). All kiosks of KMB and CTB appear to have been installed in the terminus after the completion of the construction works as all kiosks had to be put on concrete slaps on top of the brick layering and the water from the air-conditioning unit had to be collected using empty water fountain bottles instead of being directed to nearby drains. The only toilet available was the public toilet outside the far end of the bus terminus. It took the Chairman and staff of the Secretariat about 3 minutes and 38 seconds to walk from KMB's terminus supervisor office to the male toilet (**Day 21, p. 23 p.23 to 24; MISC-3/ p.1275**).

[5] TD replied that they have consulted KMB, amongst others, on the provision of ancillary facilities (including regulator's kiosks and toilet) at the West Kowloon Station Bus Terminus during the planning stage in July 2010. In reply, KMB provided their preference to place portable bus regulator office and other facilities (including rest room and toilets) at their own cost (**TD-1/p. 513; TD-6/ p. 2142-2308**)

17.14 It is noted that the TD has showed a willingness to improve the conditions of the ancillary facilities for bus captains at PTIs and bus termini by suggesting that

(i) they will explore in consultation with the relevant Government bureaux and departments on the approach for providing the ancillary facilities (including bus regulator office, restrooms with toilets as built-in structures) at new PTIs and bus termini at Government costs, while the FB Operators will pay the rent and recurrent costs for using these facilities (**TD-5/ p.1825/ para 15**).

(ii) they will liaise with LD for extending the delegation of authority to TD for processing TD's applications for installation of the ancillary facilities of larger size, i.e. at 6.21m^2 (base area) and 11.14m^2 (roof area) to help expedite the provision of facilities by FB Operators (**TD-5/ p. 1826/ para 16; Day 21/ p. 8-9**).

(iii) the Transport Planning and Design Manual Working Group will review, revise and amend the relevant chapters in the Transport Planning and Design Manual to consider the removal of the restriction in paragraph 2.7.11.4 that so long as there are resting facilities available in nearby developments, toilets, washrooms and canteen facilities will not be required in a bus terminus (**Day 21 / p. 16 to 22, p. 28 to 30**).

(iv) they will liaise with the Planning Department to update the Hong Kong Planning Standards and Guidelines to provide for a more detailed specification or definition as to what the term "other ancillary provisions" include, namely to include toilets and resting facilities for bus termini (**MISC-3/ p. 1313; Day 21/ p. 42 to 47**).

Recommendation

17.15 The Government should consider whether the TD should set up a Standing Committee to allow TD to discuss and liaise with Government bureaux or other organizations (eg Lands Department, Government Property Agency and LinkReit) to devise a more centralised system to streamline the processing of the applications for toilet and resting facilities.

17.16 A more systematic approach is recommended to allow flexibility on approval of the size of resting facilities. Proper consideration should be given as to the possibility of the LD delegating authority to the TD to approve applications for the size of such facilities.

17.17 TD to seek amendments to the Transport Planning and Design Manual and the Hong Kong Planning Standards and Guidelines with a view to stipulating the requirement for provision of proper rest facilities and conveniently located toilet facilities (with drainage and utility connections) for bus captains in planning the provision of new bus termini.

17.18 TD to issue a practice note to FB Operators on the provision of proper rest facilities (equipped with reclining chairs) and conveniently located toilet facilities for bus captains at bus termini.

17.19 TD to assume a proactive role in coordinating the early provision of these facilities at the existing bus termini and where necessary, escalate the matters and solicit the assistance of respective District Officers through their district management committee mechanisms, to resolve local objections and departmental coordination issues.

18. REGULAR MONITORING OF WORKING HOURS AND REST TIME

OF FRANCHISED BUS CAPTAINS

18.1 At present, there are no statutory requirements in Hong Kong governing the working hours of employees including drivers of all commercial vehicles.

18.2 In order to avoid long working and driving hours for FB drivers which may affect the safe operation of FBs, the TD has formulated the Guidelines since 1983 for compliance of the FB Operators on a voluntary basis in order to ensure that bus captains have sufficient rest time.

18.3 Since then, the FB Operators have taken into account the Guidelines in arranging the duty rosters of their drivers. Compliance with the Guidelines was checked by the TD and discussions with the FB Operators on the implementation of the Guidelines were held to address the operational difficulty in complying with the Guidelines.

18.4 In 1998, the TD promulgated a new set of Guidelines on bus drivers' working hours (which included guidelines on the duration and frequency of break, maximum duty length and the driving hours as well as the break between successive working hours) for full compliance by the FB Operators[6].

18.5 The Guidelines have been revised six times in 1999, 2000, 2004, 2007, 2010 and 2018.

18.6 Since 2010[7], the Guidelines have covered the following elements:

(a) the duration and distribution of rest time in a working day;
(b) the maximum working hours in a working day;

[6] The Guidelines were promulgated in 1998 for compliance from 1 January 1999.
[7] The Guidelines were revised in October 2010, but the new Guideline E on meal break was implemented by phases with full implementation of the one-hour meal break in the third quarter 2012, taking into account the need for recruiting and training sufficient bus captains to fill up the shortfall arising from the lengthened meal break.

(c) the maximum driving hours within a working day;

(d) the duration of break between successive working days; and

(e) the meal break arrangement which was a new requirement since 2010.

18.7 As stated above, the most recent review of the Guidelines began in late 2017 in the wake of a fatal bus accident in Sham Shui Po in September 2017. The TD conducted a review of the Guidelines to explore if there were room for further improvements. Specific attention was given to, amongst other things, the operational safety and service reliability of FBs; and the driving safety and healthy lifestyle of FB bus captains, especially in terms of balance between working hours and rest time as well as avoiding long hours of driving duties for a prolonged period by bus captains. This was a reactive measure to a one-off response to a specific accident and as stated above, not proactively monitored or reviewed.

18.8 The current version of the Guidelines was promulgated in February 2018 after consultation with the FB Operators. The FB Operators' aim is to implement the updated Guidelines progressively from the second quarter of 2018, and fully implement the revised Guidelines in the second quarter of 2019. The changes to the previous Guidelines promulgated in 2010 include the following -

(a) in general, the maximum duty hours of a shift should be reduced from 14 to 12 hours, and the maximum driving hours of a shift from 11 to 10 hours;

(b) a new sub-guideline is introduced whereby under a special shift duty to cater for the service demand during the morning and evening peak periods, the maximum duty hours of 14 and maximum driving hours of 10 is maintained; but an additional requirement for providing a rest break of no less than 3 consecutive hours is imposed;

(c) the existing provision of a minimum of 10-hour off-duty break period between two successive shifts should be maintained for all duty shifts. However, a new requirement is imposed to provide that the total off-duty break period in three successive duty shifts (except special shift duties)[8] should not be less than 22 hours; and

(d) the rest break after 6 driving hours should be increased from 30 to 40 minutes.

18.9 To ensure that the FB Operators comply with the Guidelines, all the FB Operators are required to submit reports from January 2018 to the TD on a monthly basis, instead of on a quarterly basis as in the past regarding their compliance with the Guidelines in arranging the duty rosters for their bus drivers.

18.10 In addition, the TD engages independent contractors to conduct sample surveys on FB captains' working hours, rest times and meal breaks for assessing compliance with the Guidelines by the FB Operators every year. (**TD-1/p. 66/ para 8**)

18.11 Although the new Guidelines allow special duties with a maximum length of 14 hours, both CTB and NWFB have set a target of 13 hours as the maximum length of special duties by the first quarter of 2020. Since October 2017, CTB has limited the maximum duty length to 13 hours. This is an interim arrangement to address the concern of fatigue of drivers before full implementation of the New Guidelines (**CTB-1/ p. 24, p. 32**; **Day 3, p. 56 line 12-19**). The reason that prompted CTB to decide to restrict its maximum duty hours is the public's concern about safety (**Day 4/ p. 75 line 22-25**).

[8] In the case of special shift duties, the new requirement that the total off-duty break period in three successive duty shifts should not be less than 22 hours cannot be applied because the existing maximum duty hours of 14 and existing provision of a minimum of 10-hour off-duty break period between two successive shifts are maintained for the special shift duties to cope with operational needs.

18.12 KMB also stated that it may also consider whether it is necessary to have 14 hours a day, and it is their intention to reduce the working hours from 14 to 13 (**Day 14/ p. 69**).

18.13 Despite the working hours and conditions of the FB bus captains being an essential component to the safe operation of a franchised bus, so far it only relied on the TD meeting with the staff unions about 2 - 3 times a year to respond to their requests and concerns such as working hours, implementation of the Guidelines, the working conditions, and their practical difficulties in their driving duties: **Day 2/ p.50-52**.

18.14 Section 35(j) of the Public Bus Services Ordinance (Cap. 230) (**THB-2/ p. 124-125**) provides that the Secretary for Transport and Housing may make regulations for, inter alia,

> "(j) regulating, in relation to the drivers of buses used by a grantee:-
>
> (i) the maximum number of hours during which any such driver may be permitted to drive such a bus; and
>
> (ii) the intervals to be provided by a grantee for the rest and refreshment of such drivers,
>
> in any period specified in the regulations."

18.15 The TD considered that the existing framework under which they enforced the compliance of the Guidelines has worked to their satisfaction, and is sufficient to monitor the FB Operators in deploying the bus drivers' driving duties for reasons that (i) the Guidelines served as an effective tool; (ii) it did not detect any significant deviation from the bus operators from the Guidelines and (iii) the existing arrangement in the form of Guidelines works well (**Day 2/ p. 60 to 64**).

Recommendation

18.16 While the Guidelines may allow flexibility for the TD and the FB Operators to change the requirements from time to time, they do not have any regulatory backing.

18.17 The Government should in future consider whether the current Guidelines be embedded within the legislation in order to give the necessary statutory backing for enforcement by the TD, with financial penalties should there be failure to comply with the Guidelines.

19. STEPPING UP ENFORCEMENT AGAINST ILLEGAL PARKING AT BUS STOPS

The use of technology to tackle illegal parking

19.1 Both in their submissions and oral testimony, the representatives of many trade unions expressed that there is an ongoing problem with illegal parking at or in the immediate vicinity of bus stops, causing difficulties for franchised buses to enter the bus stops to allow ingress and egress of passengers, particularly wheel-chair bound passengers (eg the testimony of the representatives of the Motor Workers General Transport Union: **Day 9/ p. 80 to 81; 116 to 117**). In their oral testimony, the representatives of CTB and NWFB endorsed that evidence. Mr. William Chung described it as a "*commonplace and serious problem*" which gave rise to safety concerns: **Day 4/ p. 121**.

19.2 The Hong Kong Police Force is aware of the general concern expressed by trade unions in respect of that problem.

19.3 A background brief was prepared by the Legislative Council Secretariat for the meeting of the Legislative Council's Panel on Transport on 16 December

2015 in which reference was made to the "*Report on Study of Road Traffic Congestion in Hong Kong*", dated December 2014, of the Transport Advisory Committee ("**TAC**"). The report was prepared by a working group under TAC and endorsed by the TAC. In the "Recommendations" of Chapter 4 of that report, the TAC recommended that the police "make more use of information technology to streamline the enforcement process". In that context, reference was made to a trial scheme being operated by the police "*to issue fixed penalty tickets through an e-ticketing system*" (paragraph 4.5.49).

19.4 The TAC also stated in the report (paragraph 4.5.50) to explore the use of technology concerning the enforcement of road marking commonly known as the "*yellow-box junction*". The Working Group noted that motorists' failure to comply with this road marking has sometimes caused traffic congestion at junctions. The Working Group considers that the Government should engage the information technology sector or tertiary institutions to explore and develop the use of yellow-box cameras having regard to local circumstances.

19.5 These observations were made three and a half years ago. Such cameras are deployed for the enforcement of yellow-box junctions in the United Kingdom, and in May 2018, the Singapore police also embarked on a trial for such technology. In the United Kingdom, use is made of automatic license plate recognition system. In Hong Kong, the police have been using the automatic number plate recognition system since 2015. The system enables the traffic enforcement officers to detect relevant traffic contraventions: **Day 17/p. 67-68**. The Police gave evidence that steps are now being taken to widen the use of automatic number plate recognition and to widen the number of offences that can be linked to the database which is provided by the TD: **Day 17/ p. 69**. Thus far, the Police do not have the equipment used in London at yellow-box junction (**Day 17/ p. 70**) and they

stated that it was not simply a police matter, it involved "*other government departments and policy-level decisions*": **Day 17/ p. 70-71**.

19.6 In September 2015, the THB started a study with the Hong Kong Police Force on yellow box enforcement camera system. In April 2016, because of lack of financial backing, the study came to a halt as there was no funding to support to engage a consultancy study (**Day 17/ p. 71-72**; **MISC-3/ p. 124-538/para 4**). That said, the matter is now being revived and actively considered, along with other types of enforcement cameras in the inter-departmental forum in tackling illegal parking problem. There were discussions at the inter-departmental forum about the adoption of technology to take the place of manpower in traffic law enforcement: **Day 17/ p. 75**.

19.7 On 31 July 2018, the media reported that on 1 August 2018 the Hong Kong Police Force was to commence a trial of video cameras to help the police gather evidence in respect of traffic offences and that two of the six offences which were to be targeted were those of unauthorised stopping at bus stops and unlawful entry of yellow bus intersections.

19.8 The statutory provisions governing the issuing of fixed penalty tickets for unlawful stopping at franchised bus stops are set out in the Schedule of the Fixed Penalty (Criminal Proceedings) Ordinance (Cap.240). According to the Hong Kong Police Force, the delineation of a bus stop is quite limited, often not bigger than a bus itself. Police enforcement action will be taken against illegal parking within the environs of franchised bus stops where vehicles so parked inhibit access to or egress from the bus stop itself (**MISC-3/p. 124-604/para 2**).

19.9 The Hong Kong Police Force stated that they are required to give the fixed penalty ticket to the driver or affix it to the windscreen of the vehicle there and then and not after the event (**MISC-1(C)/p. 124-613/para 6**). Under

the current legislation (ie section 15(1), (2) and (3) of the Fixed Penalty (Traffic Contraventions) Ordinance, Cap. 237), the Police cannot use the electronic ticketing or use the CCTV image and then issue a ticket. It is noted that the THB has started working on the legislative amendments to enable remote ticketing (**Day 17/ p. 65, p. 91**). The Hong Kong Police Force also informed the IRC that legislative amendments for the mode of delivery of fixed penalty tickets for illegally parked vehicles are planned to be introduced in the 2019/2020 Legislative Council sessions so that fixed penalty tickets can be delivered after the event in future (**MISC-1(C)/p. 124-613/para 7**).

19.10 It is noted that the Hong Kong Police Force welcomed the following suggestions from the trade unions, FB Operators, and some of the LegCo papers but stated that it required collaboration with the TD:

(i) the setting up of 24-hour restriction zones (Day 17/ p. 75-77);

(ii) having double yellow lines around the bus stop area (Day 17/ p.79);

(iii) deployment of CCTV and video cameras targeting moving vehicles. In the coming 24 months, the Police would look into this technology (and to use video analytics) to see how this might assist in tackling illegal parking cases (Day 17/p. 64);

(iv) adopting the practice in Singapore of asking the bus captains to press the button of the cameras installed next to their drivers' seat whenever they saw the illegal parking at a bus stop and pass the footage to the Police (**Day 17/ p. 80 to 81**)

(v) participating in discussions on the installation of Speed Enforcement Cameras with the TD making the final decision as to the installation, the

number and location of new Speed Enforcement Cameras (**MISC-1(C)/p.124-614/para 9**).

Recommendation

19.11 It is recommended that the TD consider the feasibility of the suggestions of setting up of 24-hour restriction zones and having double yellow lines around the bus stop area. CCTVs should be mounted at lampposts at bus stops to facilitate enforcement actions against illegal parking obstructing buses from entering and exiting bus stops.

20. MANDATORY GIVE-WAY BUSES SCHEME AND BUS PRIORITY BOX

20.1 In their oral testimony, representatives of Trade Unions expressed their views that the Mandatory Give-Way to Buses Scheme adopted by Singapore should be considered in Hong Kong. It is suggested that where a bus has made a direction signal preparing to exit a station, other vehicles must let the bus exit the station. A safety distance of 2 seconds is used as a determinative distance by which the bus must be given the priority to exit the station (**TU-1(B)/ Chinese at p. 88; English at p.90-8 to 90-8 para 6**).

20.2 In Singapore, the implementation of a bus lane scheme is one of the measures to give priority to buses on the road. This system requires little intervention by the driver as his video is set to continuously monitor the road in front of the bus (**EXP-1(B)/ p.226**). Due to safety reasons, the schemes will not be implemented on high speed roads, single lane roads or sites where is no clear sight of traffic (**EXP-1(B)/ p.249-9**). It is noted by the Land Transport Authority of Singapore ("**LTA**") that bus lanes are not popular amongst motorists who feel that road space is being taken away. Hence, careful evaluation of the benefits from having bus lanes is required to justify the reduction in road space for other

motorists (**EXP-1(C)/ p. 249-8**). LTA will implement new bus lanes only when evaluations show that the lanes have positive net benefits. LTA will first identify locations where high volume of buses ply the road during relevant bus lane operating hours. This is followed by evaluation of the efficacy of the proposed lane at these locations in improving the speed for buses. The costs and impact of the concerns from other stakeholders (such as bus operators, residents, local businesses whose activities may be affected by the proposed bus lanes) will be weighed against benefits of the proposed bus lanes (**EXP-1(C)/ p. 249-8/ para 3**).

20.3 In Singapore, a Bus Priority Box Scheme was introduced as a three-month pilot trial in December 2008 to address the problem of buses needing to wait for gaps in traffic stream before they could exit the bus stops to join the main road traffic. The biggest challenge faced then was to educate motorists about the new traffic rules and change their mind sets. Leaflets explaining the new traffic rules were mailed together with correspondences to motorists. It took 10 years of implementing the scheme before a positive shift in motorists' mind sets was noted through social media discussions. Bus captains are constantly reminded to practice safe defensive driving at these bus priority boxes (**EXP-1(C)/p. 249-10**). It is said that the actual impact of a Bus Priority Box scheme to traffic is relatively minor compared to bus lanes. The triangular give-way markings on the road warn motorists of the presence of exiting buses at a sufficient distance ahead, so that motorists have time and space to give way by either switching to another lane, or reducing their speed progressively to create enough gaps in the traffic stream for the buses to exit (**EXP-1(C)/p.249-10**).

20.4 It is noted that TD will consider such a mandatory scheme as one of the road enhancement measures that may be possible for improvement of bus safety in the Working Group on Enhancement of Bus Safety (**Day 21, p.122 to 123**). In particular, TD will look into the question of whether it is feasible to implement the mandatory scheme in the road sections where there may only be two traffic

lanes, and where there is high traffic flow (**Day 21, p.126**).

Recommendation

20.5 The Government should in future consider whether to introduce a pilot trial of the Mandatory Give-Way to Buses scheme or a Bus Priority Box Scheme, in particular for those locations where high volume of buses ply the road during relevant bus lane operating hours. As previously suggested, installation of CCTVs at lampposts at bus stops for the purpose of enforcement actions against illegal parking at bus stops should also be considered as one of the enforcement measures for this mandatory scheme.

21. PREVENTING ASSAULTS AGAINST BUS CAPTAINS

21.1 In recent years, bus captains have been attacked from time to time. As an example, KMB has provided a list of 188 cases of assaults on bus drivers from 1 January 2015 to 22 July 2018 (**KMB-1/ p. 213-217**). Representatives of trade unions have reported the matters to the Police and the Department of Justice (for e.g. Minutes of Meetings of 4 October 2016, 27 March 2017 and 20 July 2017) (**MISC-3/p.124-502**).

21.2 In June 2017, the TD, the Department of Justice and the Hong Kong Police Force conducted an inter-departmental meeting.

21.3 The Hong Kong Police Force stated that out of 188 cases, 131 of them are assault on bus captains by passengers when the bus captains were working. 99 cases were successfully detected. Of the 83 cases that resulted in prosecution, 75 of them resulted in convictions. There was no further action in relation to 47 cases (**Day 17/ p. 83 to 84**).

21.4 It is noted that the THB are collaborating with the TD to work on an education

plan to educate the travelling public on the sort of behaviour expected of them, and the sort of complaints channels they could or they should resort to in case of dissatisfaction with either a bus service generally or with the service of a bus driver (**Day 1/ p. 38**). The education plan would include the production of a short video clip to be broadcast at social media with a theme of "*Let's be considerate and courteous when using public transport*" (**Day 21/ p. 51**).

21.5 It is also noted that the Police will work with the TD to educate the public on bus safety and passenger behaviour. Two episodes of Police Magazine in relation to Cap. 230A attacking bus captains and illegal parking at bus stops can be viewed in the Youtube channel as follows: (http://www.youtube.com/watch?v=iOTOkEB1c2A. and http://youtube.com/watch?v=b82p_oXCOqY) (**MISC-1(C)/p.124-614/para 10**).

21.6 It is also noted that in Singapore, for assault cases, the bus captains have been advised to stop the bus immediately and to report to their Operation Control Centre ("OCC") for instruction. Where needed, Police may be activated. The OCC will also inform and alert the other bus services that ply on the affected bus route to be cautious. Bus captains are also covered under the "Protection from Harassment Act" that has been in place since November 2014 (**EXP-1(C)/p. 249-13**).

Recommendation

21.7 Stringent investigation and prosecution action should be taken against passengers assaulting bus captains. Notices should be explicitly displayed or messages broadcasted on buses to warn against passengers causing disturbance to the bus captain while performing his driving duty and the offences for which the passenger may be liable. There should be an education campaign by the TD (with real life examples) from time to time on social media and television about

the passengers' behaviours. Civic education drives should be mounted to advocate proper passenger behaviours.

22. REDUCING SPEED LIMIT ON ROADS WITH HEAVY PEDESTRIAN TRAFFIC

Working Group on Speed Limit Review

22.1 Since 2000, the TD has formed a standing Working Group on Speed Limit Review which would meet regularly to advise on speed limit. In addition to representatives from the TD, the Working Group also comprises representatives from the Police, the Hong Kong Automobile Association and the Institute of Advanced Motorists Hong Kong (**TD-1/ p. 121/ para 16**). The first Working Group meeting was held on 1 September 2000 (**TD-1/ p. 165/ item 25**)

22.2 Following the Tai Po bus accident on 10 February, the TD conducted a comprehensive review of the relevant road section, including studying whether the speed limit should be changed. The review also included studying whether the warning traffic signs and road markings should be enhanced to promote road safety. It recommended, amongst other things, that the maximum speed of the road section between Chek Nai Ping and Yung Yi Road of Tai Po road should be reduced from 70 km/hr to 50 km/hr.

22.3 The Working Group on Speed Limit Review on 27 March 2018 agreed to the recommendations, including the proposed maximum speed reduction. The new speed limit was implemented on 27 April 2018 (**TD-1/p. 166**).

22.4 In carrying out a speed limit review, the TD accepted that it would take into consideration the accident history, geometry and environment, number of changes in speed limit, and the actual vehicle travelling speed. In relation to the criteria of the accident history, the district traffic engineer of the TD will

consider whether there was a significant increase of accidents (viz. the personal injury accident rate of the road section concerned as compared with the accident rate for the territory) (**Day 20/ p.163-164**). The requests for a review of speed limit would be vetted by the district traffic engineer before it reached the Working Group (**Day 20/ p. 178**).

22.5 The TD issued an information paper to the Tai Po District Council on 9 April 2018. The Working Group had not been asked on any earlier occasion to consider the appropriateness of the speed limit in place for that section of road (**TD-1/p. 400**).

22.6 It is noted that complaints were made by the Tai Po District Councillors on the reduction of speed limit of the subject road section in 2015[9] and the installation of speed enforcement cameras in 2017[10] (**Day 21/ p. 100**). The statistics revealed that the personal injury accident rates were higher than the territory accident rates in 2016: **Day 20/p. 111-112**.

Government's approach on speed limit

22.7 In general, the Government's approach on speed limits is set out in the TD's Transport, Planning and Design Manual ("**TPDM**") and the TD will regularly update the speed limit structure in the TPDM based on overseas practice (**Day 20/ p. 187 to 189**).

22.8 The TD confirmed that it had not done any consultancy study to review the three-tier speed limit structure since 1999 when a study was conducted by the Transport Research Laboratory (**Day 21/ p. 63 to 64**). Apart from the walkability study, the TD had not carried out another major review of the

[9] Letter from Japanese International School, dated 10 February 2015 (**DC-2B/ p. 840-84**); Minutes of Meeting of the Tai Po District Council dated 13 March 2015 (**DC-2B/ p. 840-91 to 940-92**); letter from the Tai Po District Council dated 24 July 2015 (**DC-2B/p. 840-75**); Chan Siu Kuen (Tai Po District Councillor)'s evidence (**Day 6/p.9**)

[10] The TD received a copy of the police reply to Mr Chan of 16 June 2017 (TD-1/p. 395, para 9)

three-tier speed limit structure.

22.9 In January 2013, the UK Department for Transport carried out a study on the speed limit structure. The guideline governing the approach to setting different speed limits is "Setting Local Speed Limits" by the Department for Transport, London **(SEC-3/p.1003)**. The section on "Urban speed management" referred to the introduction of more 20 miles per hour speed limits zone in urban areas and built up village streets that are primarily residential to ensure greater safety for pedestrians and cyclists (**SEC-3/p. 1005; 1022**). In the "Underlying Principles", the aim of speed management policies should be to achieve a safe distribution of speeds consistent with the speed limit that reflects the function of the road and the road environment (**SEC-3/p. 1011**).

22.10 In October 2015, the TfL issued a paper titled "*Safe London Streets: Our approach*"; it stated that the lower the speed limits, the lower the casualties (**MISC-3/ p. 982; 984**). A 1 mile per hour reduction in speed could reduce the frequency of collisions by around 6 percent in urban areas (**MISC-3/p. 987**). The statistics in the paper showed that almost 25 percent of the capital's roads now have a 20 miles per hour speed limits.

22.11 Two studies[11] produced recently have suggested that if the average speed is reduced by 1 mile per hour, the accident rate would fall by approximately 6 percent on urban main roads, and residential roads with low average speeds: **Day 21/p. 79 to 80**. When speeds are reduced to a maximum of 20 miles per hour in built up areas a decline in casualties of more than 40 percent would occur: **Day 21/ p. 81**. The article also showed that as of May 2018, 43 percent of Londoners live on 20 miles per hour roads and 75 percent of people in inner London boroughs: **Day 21, p. 82**.

[11] An article dated 23 May 2018 by Rod King, entitled "*Reducing Speed limits from30 miles per hour to 20 miles per hour typically results in more than 20 per cent fewer casualties*"; The second article is "*Global consensus that 20 miles per hour is best practice*", dated 25 May 2015: **Day 21, p. 81-82.**

22.12 The TD has arranged a consultancy study to be done by AECOM to review the potential safety hazards in the Hong Kong road network, to be commenced in May 2018 with a completion date on 13 November 2020: **TD-1, p. 372, 428; Day 21/ p. 95-96**. This study covers all the Hong Kong road networks up to 4,200 kilometres of both bounds.

22.13 According to a paper issued by the Mayor's Transport Strategy entitled "*Vision Zero Action Plan*" in July 2018 (**MISC-3/p. 1207**), London has taken action to reduce speeds and around a third of the streets in London now have a 20 miles per hour speed limit. The majority of the remaining streets have a 30 miles per hour limit, the national urban default limit, with the rest having 40, 50 and 70 miles per hour limits (**MISC-3/p. 1223**).

TD's reaction to a review of speed limit and putting in place a mechanism for the Working Group to review the speed limit

22.14 Insofar as this study is concerned, it is noted that the TD agreed with the following matters:

(a) the main purpose in the UK study for setting up low speed limit zones is to enhance pedestrian safety, and there are many research and studies showing that with a low speed limit, the fatal accidents of vehicle colliding with pedestrians can be lowered: **Day 21/ p. 67-68**.

(b) in considering appropriate speed limits, there are 6 important factors namely: history of collisions including frequency, severity types and causes; road geometry and engineering; road function; composition of road users; existing traffic speeds; and road requirements: **Day 21/p. 71**. The TD accepted they will consider this if it would enhance the current system based on a costs/benefit analysis: **Day 21/ p. 71-72; p. 95**. The six factors identified in the costs/benefit analysis are as

follows:

(1) collision and casualty savings;
(2) conditions and facilities for vulnerable road users;
(3) impacts on walking and cycling and other mode shift;
(4) congestion and journey time reliability;
(5) environmental, community and quality of life impact; and
(6)the costs, including of engineering and other physical measures including signing, maintenance and cost of enforcement.

(c) the TD would explore the speed limit appraisal tool that can forecast the mean and the 85 percentile speed after the speed limit change, as well as the forecast of journey times: **Day 21/ p. 73**.

(d) the TD will study whether a low speed limit zone can be introduced as a trial and if successful, they may consider to include a low speed limit zone in the current speed limit structure: **Day 21/ p.79**. The speed-calming measures are part and parcel of the package to implement a low speed limit zone: **Day 21/ p. 87-88**.

(e) the TD agreed that a review mechanism should be introduced for the traffic engineers to reflect the public demand on a review of the speed limit to the Working Group: **Day 21/ p. 112-113**.

(f) the TD agreed that it would explore whether to have a system whereby the FB Operators are required to produce a systematic risk assessment of certain routes at specific locations: **Day 21/p. 118-120.**

Recommendation

22.15 Although speeding of buses is not found generally to be a problem, there is a

need for buses to be driven at appropriate speed particularly at sharp bends and on roads with heavy pedestrian traffic to minimise the risk of fatalities or casualties in accidents.

22.16 A trial scheme on reduced speed limit say to 30 km/hour could be launched on roads with heavy pedestrian flow and traffic black spots to evaluate its effectiveness in reducing the extent of injuries to traffic accident victims.

22.17 The TD should introduce a review mechanism for traffic engineers to forward the public demands on the review of speed limits to the Working Group on Speed Limit Review.

22.18 As part of the framework agreement, it is suggested that the TD consider requiring the FB Operators to produce a systematic route risk assessment for each and every high risk route, particularly those plying in rural areas and on hilly terrains to examine whether they are suitable for deployment of double-decker buses, and whether there are any high risk road sections to which the special attention of bus captains should be drawn.

Dated 29 November 2018

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