**For discussion**
**on 19 June 2020**

# Legislative Council Panel on Transport

## Review on the Standing Capacity and Service Level of Franchised Buses

## Purpose

The Transport Department (TD) conducted a review on the standing capacity of franchised buses (FBs) last year with a view to addressing public concerns and enhancing the service level of FBs. This paper briefs Members on the outcome of the review and seeks Members' views on the subject.

## Background

*Statutory Safety Requirements*

2. The Road Traffic (Construction and Maintenance of Vehicles) Regulations (Cap. 374A) (Regulations) impose stringent requirements on the design, construction and maintenance of vehicles operated on roads of Hong Kong in order to ensure road safety. In particular, regulations 7 and 74 of the Regulations specify respectively the maximum gross vehicle weight[1] and the number of standing passengers allowed on buses. TD calculates the statutory total number of passengers that may be carried on buses in accordance with these provisions[2]. According to regulation 74 of the Regulations, the number of standing passengers allowed on a bus is generally calculated on the basis that each standing passenger occupies 0.17 square metre, i.e. about six persons per square metre (ppsm).

---

[1] Regulation 7 and Schedule 2 of the Regulations specify the maximum gross vehicle weight of different vehicle classes. Depending on the axle designs of different bus models, the maximum gross vehicle weight (including passengers on board) of buses shall not exceed 16 or 24 tonnes.

[2] If the gross vehicle weight of a fully loaded FB (with the number of allowed standing passengers calculated in accordance with regulation 74 of the Regulations) would exceed the requirement under regulation 7 of the Regulations, the number of standing passengers allowed on the lower deck of the bus shall be reduced accordingly in order to meet the requirement under regulation 7.

3. The above statutory requirement regarding the number of standing passengers that may be carried on buses is one of the requirements on vehicle safety under the Regulations. These requirements set standards on design and construction of vehicles from the safety perspective. FBs can operate on roads only if they fulfill the various requirements under the Regulations (including the maximum gross vehicle weight, maximum axle loading, and total floor area available to standing passengers, etc.). FB companies should ensure that different bus models will not exceed their respective maximum loading in their daily operation to ensure road safety.

*Guidelines for adjusting bus service level*

4. Besides, to assist FB companies in making timely adjustments to the service level in response to passenger demand, thereby enhancing their services and operational efficiency of the overall bus network, TD has promulgated the Guidelines on Service Improvement and Reduction in Bus Route Planning Programme (Guidelines) (at **Annex 1**). The Guidelines set out quantitative indicators for frequency improvement or reduction according to changes in passenger demand, including:

(i) **Frequency Improvement**: If the occupancy rate of any bus route reaches 100% during any half-hour of the peak period and 85% during that one hour, FB companies will consider increasing vehicle deployment and service frequency to enhance the service level; and

(ii) **Frequency Reduction**: If the average occupancy rate of an individual route is below 85% during the busiest half-hour of the peak period, FB companies will consider reducing vehicle deployment and service frequency to enhance the overall efficiency of the bus network.

5. Apart from making reference to the above quantitative indicators set out in the Guidelines, TD and FB companies will exercise flexibility in taking into account other factors (including providing a more comfortable environment for passengers of long-haul routes, waiting time, passengers' feedback, etc.) when reviewing the frequency of bus routes for increasing bus deployment and frequency as appropriate to enhance the service level of FBs.

**Review on the Standing Capacity of FBs**

6. In light of public and passengers' concerns about ride comfort, TD reviewed the standing capacity of FBs last year, taking into account the following elements:

(i) Safety standards on the number of standees on public buses in overseas jurisdictions;

(ii) Riding habit of passengers; and

(iii) Impact of amending the regulatory requirement regarding the number of standees on FBs.

*Safety standards on the number of standees on public buses in overseas jurisdictions*

7. TD has looked into legislation regarding safety standards on the number of standees on buses in overseas jurisdictions such as the European Union, the United Kingdom, Australia, Japan, Korea and Singapore, and found that the statutory requirement in Hong Kong (i.e. about six ppsm)) is comparable to that in overseas jurisdictions[3].

*Riding habit of passengers*

8. According to TD's observation, the distribution of standing passengers on FBs is generally uneven. There are usually more passengers standing between the middle door and the front door on the lower deck for convenience of alighting, making this section of the bus compartment sometimes crowded, while there are usually more spaces near the rear of a bus. Bus captains have to remind passengers from time to time to move into the bus compartment to make room for other passengers to board the bus. On the other hand, passengers in general wish to have a more comfortable bus journey as well as more personal space on board. For the more frequent bus routes, some passengers may wait for the next bus in return for more spaces on board.

---

[3] Statutory safety standards on the number of standees on buses in overseas jurisdictions:
(i) European Commission/United Nations Economic Commission for Europe/United Kingdom/Singapore/Korea - 0.15$m^2$ per standee (i.e. about 6.6 ppsm);
(ii) Australia (Victoria)/New Zealand – 6.25 ppsm; and
(iii) Japan - 0.14$m^2$ per standee (i.e. about seven ppsm).

*Impact of amending the requirement regarding the number of standees on FBs*

9. The total carrying capacity of bus models commonly deployed by FB companies is 124 to 146 persons, including 44 to 48 standing passengers. If TD amends the regulations relating to the safety standards to reduce the number of standees on FBs from six ppsm to four ppsm, the total carrying capacity of FBs will drop by 11% to 12%, to 109 to 130 persons. Please refer to **Annex 2** for more details.

## Review Results and Proposals

10. The review results reveal that the existing statutory safety requirement in Hong Kong regarding the number of standing passengers allowed on buses (i.e. about six ppsm) is comparable to that in overseas jurisdictions. As such, there is no need to amend the statutory requirement. Nevertheless, TD recognises that the riding habit of passengers has been changing and they generally look for a more comfortable bus journey. After reviewing the situation, TD considers it feasible to adopt 4 ppsm[4] as the benchmark for **service level** so as to provide better FB services to passengers.

11. Specifically, TD proposes to amend the indicators for adjusting vehicle deployment/service frequency in the Guidelines to lower the thresholds for increasing bus deployment. FB companies will be required to use 4 ppsm as the basis for calculating occupancy rate for increasing or reducing bus deployment/frequency. The amendments will enhance standing space for passengers and improve the service level of FBs. The proposals are summarised below:

[4] While the design capacity of MTR trains is six ppsm, to provide a more comfortable environment for passengers, MTRCL has adopted four ppsm as the service benchmark for new railway lines.

| Average occupancy rate of bus routes | | Existing threshold (about six ppsm) | Proposed threshold (about four ppsm) |
|---|---|---|---|
| Frequency Improvement | Busiest Half-hour | 100% | **90%** |
| | Busiest Hour | ≧85% | **≧75%** |
| Frequency Reduction | Busiest Half-hour | <85% | **<75%** |

12. As an illustration, for a "Volvo B9TL 12 metres" (a bus model commonly deployed by FB companies), the statutory total carrying capacity is 137 (including 47 standing passengers). According to the existing Guidelines, its occupancy rate should reach 100% (i.e. 137 passengers) in the busiest half-hour and 85% (i.e. 117 passengers (including 27 standing passengers)) during that one hour before the FB companies should increase vehicle allocation and frequency. With the revised Guidelines, when its occupancy rate reaches 90% (i.e. 124 passengers (including 34 standing passengers)) in the busiest half-hour and 75% (i.e. 103 passengers (including 13 standing passengers)) during that one hour, the FB companies should increase vehicle allocation and frequency. As for frequency reduction, under the revised Guidelines, FB companies should only reduce service frequency when the average occupancy rate is below 75%. With the implementation of the revised Guidelines, we envisage that individual departures (especially during peak hours) may still have more passengers, but routes with higher demand will have increased frequency and it will make it easier for waiting passengers to take the next bus. In overall terms, there will be improvement in standing space on FBs.

13. TD has examined whether there is a need to amend the statutory safety requirement regarding the number of standing passengers on buses (i.e. about six ppsm) as mentioned in paragraph 2 above. We consider that the relevant statutory requirement aims to ensure road and passenger safety by setting standards on vehicle design and construction, and the existing standards in Hong Kong are comparable to those adopted in overseas jurisdictions. Thus there is no need to reduce the existing statutory standing capacity. In fact, maintaining the existing statutory carrying capacity can allow operational flexibility and for FB companies to respond to emergency situations more effectively. For example, in case of unexpected incidents (e.g. railway incidents, resumption of work after typhoon/extreme weather), FB companies need to deploy large number of buses in a short time to cater for sudden

upsurge in passenger demand. If the statutory carrying capacity of FBs is reduced, passengers will need to wait longer for bus services and it will be more difficult and less efficient for FB companies to divert passengers under these situations. Moreover, FB companies and bus captains have expressed concerns about difficulties in enforcement if the statutory carrying capacity is reduced, especially during morning peak hours when passengers rush for work/school. In the situation when a bus has already reached the revised carrying capacity limit (but there is still standing space on the lower deck and it is within the safe carrying capacity) and there are passengers who wish to board the bus, maintain the existing statutory requirement can allow more flexibility and may help avoid conflicts between passengers and the bus captain.

## Implementation of proposals

14. TD has, in light of the results of the review, discussed with FB companies the implementation plan. FB companies agreed to provide more space for standing passengers to enhance their services, and estimated that they would need to procure about 50 additional buses and recruit about 120 more bus captains. Subject to the progress of bus procurement and bus captain recruitment, and the development of the epidemic, TD envisages that the revised Guidelines could start to be implemented in mid-2021 at the earliest.

## Advice Sought

15. Members are invited to note the review results and comment on the proposals as set out in paragraphs 10 to 14 of this paper.

**Transport and Housing Bureau**
**Transport Department**
**June 2020**

**Annex 1**

# Guidelines on Service Improvement and Reduction in Bus Route Development Programmes

## Service Improvement

### (I) Frequency Improvement

If the occupancy rate of any bus route reaches 100% during any half-hour of the peak period and 85% during that one hour, or reaches 60% during the busiest one hour of the off-peak period, the Transport Department (TD) will consider the deployment of more vehicles to enhance the service level. In increasing the vehicle allocation, priority will be given to redeploying vehicles saved from other rationalisation items.

### (II) New Bus Service

If the frequency improvement alone is not sufficient to meet demand and no practical alternatives are available, we will give consideration to the provision of new bus service, with priority to serve areas that are beyond the catchment area of existing railways or railway feeders. In approving any new bus service, we will also consider the impact of such new service on the traffic condition on major roads, and will as far as possible refrain from providing long haul bus routes or routes that operate via busy districts such as Mong Kok, Tsim Sha Tsui, Central, Wan Chai, Causeway Bay etc.

## Service Reduction

In pursuance of our policy objective of providing a safe, efficient and reliable transport system in a sustainable environment, franchised bus routes with low utilisation would be rationalised from time to time to enhance bus operation efficiency while meeting passenger demand and matching local operating environment, reducing traffic congestion and roadside emission. These guidelines set out the situations whereby rationalisation measures such as adjustment to service frequency and timetable, route cancellation / amalgamation, route truncation, etc. would be pursued.

**(III) Reduction of Bus Trips along Busy Corridors**

In view of concentration of activities in the urban areas leading to serious environmental and traffic concerns, TD is committed to reducing the number of bus trips along busy corridors and bus stoppings through various measures of service cancellation / reduction and route rationalisation. If it is inevitable for new routes or enhanced bus services to operate via these busy corridors, the bus operators will have to reduce the same number of trips plying through the same corridor from other routes in order not to aggravate the traffic and environmental conditions in these busy corridors.

**(IV) Frequency Reduction**

If the average occupancy rate of an individual route is below 85% during the peakiest half-hour of the peak period, or below 30% during the off-peak period, TD will consider reducing bus deployment for the route.

Railway feeder routes, socially essential routes (such as bus routes serving remote areas or where the majority of the passengers are elderlies) with no alternatives available, and routes with peak headways at 15 minutes or more will be considered on individual merits.

**(V) Route Cancellation / Amalgamation**

If the utilisation of a low-frequency route does not improve (i.e. a bus route with average occupancy rate lower than 50% during peak hour, despite its headways having already been reduced to 15 minutes and 30 minutes during peak hours and off-peak hours respectively), TD will consider proposing cancellation of the route or amalgamation of the route with other route(s) in consultation with the bus operators.

**(VI) Route Truncation**

To optimise the use of resources, TD will review with relevant bus operators the feasibility of truncating routes, in particular those where majority of the passengers will have alighted en route. In formulating truncation proposals, TD will consider whether the number of affected

passengers is excessive (i.e. the occupancy rate of not more than 20% to 30% at the proposed truncated section during the peakiest hour); whether enough roadside space is available to accommodate the affected passengers for interchange; and whether terminal space for the changed route is available.

**Factors to be Considered in Bus Service Rationalisation**

In formulating rationalisaton proposals, in particular those where drastic measures are to be adopted, TD would give due consideration to ensure that the interests of passengers would be taken care of and to minimise impact on them as far as possible. Factors that will be taken into account include:

(a) nature of the services proposed to be cancelled: For services the utilisation rates of which have been consistently low but are socially essential (i.e. those serving remote areas or where majority of the passengers are elderlies) and without reasonable alternatives, TD would consider other means to improve the service performance, such as through the use of vehicles with smaller carrying capacities, provision of alternatives such as introduction of replacement green minibus services, etc;

(b) availability of reasonable alternatives: In proposing service cancellation, measures have to be taken to ensure that reasonable alternatives for the affected passengers are provided as far as possible. Factors such as the availability of spare capacity of alternative services in taking up the diverted passengers, the number and convenience of interchanges involved, the total journey time (including interchange and on-vehicle time) as compared with the existing services, etc, would be assessed carefully to ensure the reasonableness of the alternative services;

(c) fare of the best available alternative service: The total journey fare as compared with the fare of the existing service would be assessed. Positive consideration to route cancellation will be given if the total journey fare is not higher than that of the service being considered for cancellation. The relevant bus operators would also be requested to consider the provision of fare concessions, such as interchange discounts, section fares, special discounts to elderly, and other incentives wherever appropriate and feasible, to provide attraction to the affected passengers to facilitate the implementation of the rationalisation proposals;

(d) transport operational considerations: The proposed service rationalisation should not cause undue hardship to passengers or operational problems. Factors such as the number of passengers requiring interchanges, the availability of space for interchange activities, etc. would be carefully assessed. The deployment of the saved vehicles to improve services within the same district would also be spelt out where appropriate;

(e) impact of the proposed service rationalisation on bus captains: Factors to be considered include the number of bus captains that would be affected by the proposed service rationalisation, and whether the excess bus captains could be absorbed through natural wastage or other means without causing any major staff issues; and

(f) environmental benefits arising from the service rationalisation: Environmental benefits such as the reduction in emission, reduction of bus trips in busy corridors, etc. would be spelt out in the consultation documents for the public to take note of.

**Annex 2**

## Total Carrying Capacity of Major Bus Models

| Bus Model | Seat | Standing Passenger | | Total Carrying Capacity | | |
|---|---|---|---|---|---|---|
| | | Six ppsm (Existing) | Four ppsm | Six ppsm (Existing) | Four ppsm | Change (%) |
| Trident E500 Turbo 12m | 90 | 47 | 31 | 137 | 121 | **-16 (-12%)** |
| Volvo B9TL 12m | 90 | 47 | 31 | 137 | 121 | **-16 (-12%)** |
| Trident E500 Turbo 12.8m | 98 | 48 | 32 | 146 | 130 | **-16 (-11%)** |
| Alexander Dennis Enviro 500 12m | 80 | 44 | 29 | 124 | 109 | **-15 (-12%)** |
| Dennis Trident Enviro 500 | 86 | 43 | 29 | 129 | 115 | **-14 (-11%)** |