

**For discussion**

**on 16 December 2022**

**Legislative Council Panel on Transport**

**Legislative Proposals on Updating the Construction of Vehicle Requirements to Improve Road Safety**

**PURPOSE**

To enhance road safety and to embrace updated automotive technology, the Government proposes seven legislative amendments to update the construction of vehicle requirements. This paper invites Members' views on the Government's legislative proposals set out below.

**BACKGROUND AND CURRENT SITUATION**

2. The Government endeavors to ensure the safety of road users by adopting a multi-pronged strategy, through the application of new technology, improvements to transport facilities and traffic management, legislation and stepping up enforcement, as well as publicity and education, etc. The Transport Department ("TD") has been closely monitoring the trends of traffic accident statistics and analysing the relevant data. Reference is also made to systems and experiences in places outside Hong Kong, with a view to formulating and implementing appropriate road safety strategies and measures, including legislative amendments.

3. Having considered the international vehicle construction and maintenance standards, latest automotive technology development, road conditions in Hong Kong, and after a detailed review of the relevant legislation and making reference to the systems in other regions, we make the following seven legislative amendment proposals—

(I) Requiring the installation of acoustic vehicle alerting system ("AVAS") for electric/ hybrid electric vehicles ("EVs")<sup>1</sup>;

(II) Requiring the installation of over-height warning system for vehicles

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<sup>1</sup> Covering vehicles propelled by electric motor without an internal combustion engine operating.

with extendable aerial structures;

- (III) Revising the statutory requirement of reflecting mirrors and introducing requirements of camera-monitor system (“CMS”);
- (IV) Revising the statutory requirements of visual display unit (“VDU”);
- (V) Revising the driving rules to enable the use of remote control parking function by driver;
- (VI) Updating miscellaneous requirements on vehicle construction in line with international vehicle standards and technological development; and
- (VII) Extending the types of electric vehicles<sup>2</sup> that can be used on expressways, without the need to obtain an expressway permit, provided that the electric vehicles conform to specification.

**(I) Requiring the installation of AVAS for EVs**

4. EVs are quieter vehicles. When they are in operation, they are quieter than motor vehicles solely propelled by internal combustion engines. The increasing use of these quiet vehicles on roads may, nevertheless, impose safety risks on other road users. When quiet vehicles are approaching at low speed (e.g. below 20km/h), pedestrians may not be acoustically alerted of the road conditions. In fact, overseas studies reveal that quiet vehicles are more likely to collide with pedestrians than conventional vehicles.

5. To safeguard the safety of pedestrians and other road users, the automotive industry has developed AVAS exclusively for quiet vehicles in recent years. Generally speaking, it is a device which emits warning sound<sup>3</sup> whenever the vehicle is operating at low speed, so as to alert nearby pedestrians and other road users. Through TD’s vehicle type approval mechanism, with effect from 1 July 2021, EVs shall be equipped with AVAS in compliance with the specifications when they apply for type approval.

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<sup>2</sup> In the context of electric vehicles used on expressways, electric vehicle refers to a vehicle solely propelled by an electric motor.

<sup>3</sup> The warning sound shall comply with relevant international standards and the sound level is between 50 dB(A) and 75 dB(A) in general.

## *Legislative proposal*

6. To ensure road safety, the Government proposes to introduce the AVAS as one of the requirements for assessing whether the design and construction of vehicle concerned is suitable for registration<sup>4</sup> in Hong Kong. We propose amending the Road Traffic (Construction and Maintenance of Vehicles) Regulations (Cap. 374A) to include relevant requirements such that relevant vehicles manufactured one year after commencement of the regulations shall be equipped with AVAS in compliance with international standards for registration and licensing of vehicles in Hong Kong.

7. Regarding the penalties for non-compliance, we propose adopting the current penalties stipulated in regulation 121 of the Cap. 374A<sup>5</sup>. Any person who contravenes the relevant regulations is liable to a fine at level 3 (\$10,000) and to imprisonment for 6 months.

### **(II) Requiring the installation of over-height warning system for vehicles with extendable aerial structures**

8. Vehicles equipped with extendable aerial structures such as lorry crane, tipper, mobile crane and aerial platform (see **Annex**) are commonly used on roads in Hong Kong. According to TD's vehicle registration records, these vehicles are generally classified as goods vehicles or special purpose vehicles<sup>6</sup>. The existing legislation also sets out the maximum overall heights of different vehicle classes<sup>7</sup>.

9. Although TD has launched a series of publicity efforts to remind drivers to stow the extendable aerial structures of the motor vehicles through various means, e.g. variable message signs installed on some major roads or tunnel areas

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<sup>4</sup> In accordance with section 24(2) of Road Traffic Ordinance (Cap. 374), the Commissioner for Transport may refuse to register a motor vehicle in the class specified in the application for its registration if he considers that by reason of its design or construction or otherwise the vehicle is not suitable for registration in that class. The vehicle owner shall ensure that the vehicle complies with the requirements of relevant regulations for completion of the vehicle registration.

<sup>5</sup> The regulation stipulates that any person who uses or causes or permits to be used on any road any vehicle which does not comply in all respects with the regulations in Cap. 374A commits an offence. Currently, the requirements of other vehicle equipment include efficiency of braking system and transparency of safety glass, etc.

<sup>6</sup> Goods vehicle means a motor vehicle primarily used for the carriage of goods, including lorry crane and tipper. Special purpose vehicle means a motor vehicle primarily for a use other than the carriage on a road of goods, the driver or passengers. Mobile crane and aerial platform belong to this category of vehicle.

<sup>7</sup> Regulation 6 of Cap. 374A stipulates that a vehicle shall not exceed the overall dimensions specified in the First Schedule. For medium goods vehicles, heavy goods vehicles and special purpose vehicles, their maximum allowable overall vehicle height is 4.6 metres.

and publication and distribution of the Road Safety Bulletins and publicity leaflet, etc., relevant serious traffic accidents still occurred from time to time. One of the main causes of the traffic accidents is because the extendable aerial structures of the vehicles are not properly stowed. These accidents may not only cause danger to the drivers and other road users, but they may also lead to serious damages to other road facilities.

10. Currently, there are a number of types and designs of over-height warning system in the market, which are especially designed for vehicles with extendable aerial structures. The system will alert the driver timely if the extendable aerial structure is out of its stowed position when the vehicle is in motion. The Government has encouraged vehicle owners to install the warning system voluntarily through regular meetings with goods vehicle trade and other publications.

#### *Legislative proposal*

11. To further improve the safety of vehicles with extendable aerial structure, the Government proposes to amend Cap. 374A to require the installation of an over-height warning system on all registered and licensed vehicles with extendable aerial structures. Any vehicle that is fitted with an extendable aerial structure that can be raised as a result of which the overall height of the vehicle exceeds the overall allowable height specified in the First Schedule to Cap. 374A, shall be installed with an over-height warning system to alert the driver when the extendable aerial structure is not properly stowed while the vehicle is in motion. Regarding the installation of the system, depending on the type of extendable aerial structure on the vehicle, the installation cost is generally in the order of a few thousand dollars.

12. Taking into account the required lead time for preparation by the trade as well as for ensuring the smooth transition of the relevant vehicles to comply with the new requirements, we propose to implement the relevant requirements by phases after the legislation is passed by the Legislative Council (“LegCo”):

- (a) From a date no earlier than 1 July, 2023, registered and licensed lorry cranes shall be equipped with an over-height warning system before they can pass the vehicle examination for renewal of the vehicle licence; and
- (b) From a date no earlier than 1 July, 2024, other relevant registered and licensed vehicles (including tipper, mobile crane and aerial platform, etc.) fitted with an extendable aerial structures shall be equipped with an over-height warning system before they can pass the vehicle examination for renewal of the vehicle licence.

13. In addition, taking into consideration of the Government’s policy of progressively phasing-out Euro IV diesel commercial vehicles<sup>8</sup> (“DCVs”) and the trades’ concern about the cost effectiveness of retrofitting these vehicles which will be scrapped soon, we propose to exempt DCVs running on Euro IV engines with extendable aerial structures which are about to be phased out from the retrofitting requirement of installing over-height warning systems<sup>9</sup>, including:

- (a) Diesel lorry crane which was first registered in or before 2009 and is not an excluded vehicle<sup>10</sup> as defined in the Air Pollution Control (Air Pollutant Emission) (Controlled Vehicles) Regulation (“Cap. 311X”); and
- (b) Other diesel goods vehicles with extendable aerial structure which was first registered in or before 2010 and is not an excluded vehicle as defined in the Cap. 311X.

14. Regarding the penalties for non-compliance, we propose adopting the current penalties stipulated in regulation 121 of Cap. 374A. Any person who contravenes the relevant regulations is liable to a fine at level 3 (\$10,000) and to imprisonment for 6 months.

### **(III) Revising the statutory requirement of reflecting mirrors and introducing requirements of CMS**

15. The requirements of the installation of reflecting mirrors are set out in the existing regulation 39 of Cap. 374A but there is no specific requirement on the performance of reflecting mirrors and the required field of vision. The performance of reflecting mirrors and the required field of vision will ensure that drivers would be able to have a clear vision to monitor nearby road traffic as well as lowering the likelihood of traffic accidents attributable to blind spots of vehicles.

16. In addition, with continuously advancing automotive technology, CMSs, commonly known as “digital mirrors”, are currently available in the

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<sup>8</sup> The Government will progressively phase out Euro IV DCVs which include goods vehicles, light buses and non-franchised buses. The Government will stop issuing licences to Euro IV DCVs after the specified deadlines for cancelling the vehicle registration unless they can comply with the emission standards applicable to a DCV of the same class seeking first registration on the date of the vehicle licence application.

<sup>9</sup> The total numbers of vehicles stated in paragraph 13 (a) and (b) are approximately 250 and 400 respectively. These vehicles are expected to be phased out at the latest by end of 2025 and 2026 respectively.

<sup>10</sup> DCVs which on the date of first registration had complied with Euro V emission standards are categorised as Excluded Vehicles under the Cap. 311X.

market. They usually consist of small camera units fitted externally on the vehicle and monitor units installed inside the driving cabinet. Compared with surface area of reflecting mirrors, smaller camera units of CMSs improve aerodynamics of vehicle, resulting in reduction of air resistance and in turn fuel consumption and carbon dioxide emissions. Some vehicle manufacturers have started using CMSs to replace conventional reflecting mirrors.

#### *Legislative proposal*

17. To ensure the performance of reflecting mirrors and their installation are up to prevalent international standards, and taking into account the required lead time for production of the vehicles in compliance with the requirements and achieving relevant safety certification by the trade, the Government proposes to amend Cap. 374A. The amendments will set out the specifications and performance requirements for reflecting mirrors and CMS (such as image quality, reflecting mirror area and field of vision, etc.), and stipulate that vehicles manufactured or first registered three years after the commencement of regulations shall comply with the requirements for reflecting mirrors and/or CMS, before registration and licensing of the vehicle in Hong Kong. The amendments will also allow the use of CMS as an alternative to conventional reflecting mirrors.

18. Regarding the penalties for non-compliance, we propose adopting the current penalties stipulated in regulation 121 of Cap. 374A. Any person who contravenes the relevant regulations is liable to a fine at level 3 (\$10,000) and to imprisonment for 6 months.

#### **(IV) Revising the statutory requirements of VDU**

19. Under regulation 37 of Cap. 374A, VDU installed at any point forward of the driver's seat, or visible to or within reach of the driver in the driving seat must only give driver (a) information about the current state of the vehicle or its equipment; (b) the current closed-circuit view of any part of the vehicle/area surrounding the vehicle; (c) information about the current location of the vehicle; or (d) any other information which is only for the purpose of navigating the vehicle. Otherwise, a VDU is not allowed to display any other information such as television programmes and movies. The restrictions imposed by the existing law on the type of information displayed on a VDU aim at preventing drivers from being distracted by VDU. Such requirement applies to VDU at any time whether or not the vehicle is in motion.

20. In recent years, there has been an increasing variety of information that could be displayed on VDU such as messaging, video streaming, etc. In addition, it has been increasingly popular for drivers to use driving-related mobile

applications for seeking information on navigation, real time traffic condition, electric vehicle charging stations and parking facilities, etc. Currently, the European Union, Japan and New South Wales of Australia allow the display of any type of information on VDU when a vehicle is stationary, or parked.

#### *Legislative proposal*

21. With reference to the overseas practices and taking into account the road traffic conditions in Hong Kong, as well as advancement of technology, the Government proposes to relax the existing restrictions on the installation of VDU and the types of information and view to be displayed under regulation 37 of Cap. 374A, such that there is no restriction on the information to be allowed for display on VDU when the parking brake of a vehicle is applied (i.e. the vehicle is parked).

#### **(V) Revising the driving rules to enable the use of remote control parking function**

22. Vehicle manufacturers have, in recent years, equipped their new products with the Advanced Driver Assistance System (“ADAS”), in order to enhance driving experience as well as to ensure road and vehicle safety. Amongst various functions of ADAS, the remote control parking function enables the driver to use a device (such as mobile phone, control device or mobile communication device) to remotely control and park the vehicle at designated parking space. This function also detects obstacles along the travelling path of the vehicle and may stop the vehicle in case of emergency. During the course of operation, the driver has to stay close to the vehicle in order to monitor and control the vehicle. This function is particularly useful to enable the driver to safely park the vehicle in narrow parking spaces. The occurrence of accidental contact of other vehicles or nearby structure/object may be reduced.

#### *Legislative proposal*

23. To enable the use of remote control parking function and also allow a driver to use a device to remotely park the vehicle, the Government proposes to amend the driving rules under the Road Traffic (Traffic Control) Regulations (Cap. 374G) to the effect that regulations 42(1)(g) and 44(1)<sup>11</sup> shall not apply at the time when the remote control parking function is being used by the

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<sup>11</sup> Regulation 42(1)(g) of Cap. 374G stipulates that when the driver, who is driving a vehicle, is prohibited from using mobile telephone or any other telecommunications equipment or any accessory, while holding it in his hand, and is also prohibited from using mobile telephone while holding it between his head and shoulder. Regulation 44(1) of Cap. 374G stipulates that the driver is prohibited from vacating the vehicle without having the engine stopped and having the parking brake applied.

driver. If the exemption was not given, the driver would contravene the above regulations when leaving the vehicle to control parking remotely. Whilst the legislative intent of the existing law is to ensure that the driver switches off the engine of the motor vehicle before leaving the vehicle and will not be distracted by using handheld mobile telephone while driving, the disapplication of both regulations under Cap. 374G will not undermine the legislative intent in view of the proven technology and safety requirements of the remote control parking function, which will be further governed and controlled by TD's vehicle type approval mechanism.

24. Although the mode of operating and driving a vehicle is changed and the driver can also leave the driver's seat to park the vehicle, in principle, there is still legal liability of the driver using the remote control parking function. The definition of "driver"<sup>12</sup> under section 2 of the Road Traffic Ordinance (Cap. 374) does not specify that the person is required to be on board the vehicle but refers to any person who is in charge of or assisting in the control of any vehicle. As the vehicle is still by and large under a driver's control when using the remote control parking function, enabling the use of the function will not alter the prevailing regulatory regime under Cap. 374 in respect of a driver's liability in the course of driving or using the vehicle. As such, we suggest that any person who is using the remote control parking function of a vehicle shall bear the legal liability of driver. While embracing the vehicle technology advancement, a person who is in charge of the remote control parking function of a vehicle remains to be liable for any traffic accident occurred in the course of the operation of remote control parking. In addition, the TD will formulate technical guidelines, including operating mode, distance between driver and vehicle, operation at the sloped roads, etc., to ensure road safety.

## **(VI) Update of miscellaneous requirements on vehicle construction**

25. Currently, Cap. 374A stipulates construction and maintenance requirements for vehicles, systems and components to ensure the roadworthiness of motor vehicles being used on roads. With the advancement of automotive technology, some requirements stipulated in the existing legislation such as lighting lamps, reflectors<sup>13</sup> and height of single-decked bus may not be in line with prevalent international vehicle standards and technological development. At present, the TD has widely adopted the latest vehicle technology through

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<sup>12</sup> Section 2 of Cap. 374 specifies "in relation to any vehicle (other than a rickshaw), vehicle of the North-west Railway, or tram, means any person who is in charge of or assisting in the control of it and, in relation to a rickshaw, means any person pulling a rickshaw."

<sup>13</sup> Reflector is installed at the rear of vehicle. Through reflecting the light beam emitted from the headlamp of vehicle behind, it is easier for the driver of the vehicle behind to notice the presence of the vehicle ahead.



vehicle type approval mechanism and vehicle examination services, and granted exemptions to certain outdated statutory requirements under its statutory power.

### *Legislative proposal*

26. To specify the relevant requirements of vehicle construction in the provisions of regulations and bring them in-line with prevalent international vehicle standards and technological development, we propose to amend Cap. 374A for the following items –

- a) relaxing the maximum allowable overall height of single-decked bus stipulated under regulation 6 and the First Schedule to Cap. 374A from 3.5 metres to 4.0 metres, which tallies with relevant standards in both the Mainland China and the European Union; and
- b) allowing the use of light emitting diodes (“LED”) for lamps of vehicles and aligning the lighting and reflector requirements stipulated under Part VII and corresponding schedules to Cap. 374A with prevalent international standards.

### **(VII) Extending the types of electric vehicle that can be used on expressways**

27. At present, under regulation 4 of the Road Traffic (Expressway) Regulations (Cap. 374Q), only certain types of electric vehicles (i.e. private car with a rated power of not less than 7 kilowatts (kW) or motor cycle or motor tricycle with a rated power of not less than 3 kW) are allowed to be used on expressways<sup>14</sup>. The regulation aims at ensuring that only vehicles which are able to quickly attain a speed compatible with that of the main traffic stream are allowed to be used on an expressway. To cater for individual circumstances, registered owner of any vehicle which is suitable for use on expressways but does not fall under the general categories set out in regulation 4 of Cap. 374Q may submit application to the Commissioner for Transport for an expressway permit according to regulation 50A of the Road Traffic (Registration and Licensing of Vehicles) Regulations (Cap. 374E)<sup>15</sup>.

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<sup>14</sup> For vehicles other than electric vehicles, regulation 4(1) of Cap. 374Q stipulates that private car, taxi, private light bus, private bus, public bus, light goods vehicle, medium goods vehicle, heavy goods vehicle, motor cycle, motor tricycle and recovery vehicle, which have cylinder capacity of the engine not less than 125 cubic centimetres, are allowed to be used or driven on an expressway.

<sup>15</sup> The expressway permit is valid for 12 months, and the existing fee of application is \$175.

28. In 2012, the electric vehicles sold in the market are mainly private cars and motor cycles<sup>16</sup>. At that time, other electric vehicle classes were not yet popular so there was no sufficient data for TD to set out vehicle specifications applicable to general situations. For road safety considerations, only electric private cars and electric motorcycles / motor tricycles were allowed to be used on expressways when we amended Cap. 374Q in 2012, while the practice for other electric vehicles remains unchanged, i.e. requiring application for expressway permits for relevant vehicles running on expressways.

29. Since then, the TD has been paying close attention to the rapid development of automotive technology and its applicability to the local market. With the increasing popularity of electric vehicles, vehicle manufacturers have also introduced different types of electric vehicles<sup>17</sup> in recent years. In addition to private cars, motorcycles and motor tricycles, the types of electric commercial vehicles currently in use locally include taxis, goods vehicles, light buses, buses, etc. The general design and the maximum design speed of these electric vehicle are normally comparable to the corresponding motor vehicles propelled by conventional engines.

### *Legislative proposal*

30. Taking into account the rapid development of electric automotive technology including the general design and the maximum design speed of relevant vehicles which are on par with that of the motor vehicles propelled by conventional engines, and the specifications and standards of electric vehicles used on expressway being adopted in other jurisdictions, as well as reducing unnecessary administrative procedures, we propose to amend Cap. 374Q to permit electric taxis, electric private light buses, electric buses (including private buses and public buses), electric goods vehicles (including light, medium and heavy goods vehicles) and electric recovery vehicles in compliance with relevant specifications, to travel on expressways without the need to apply for expressway permit.

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<sup>16</sup> At that time, there were only 285 registered electric private cars and 33 registered motor cycles or motor tricycles while electric light and medium goods vehicles, electric private light buses and electric buses accounted for a total of 18.

<sup>17</sup> In recent years, the number of electric vehicles registered in Hong Kong has increased significantly. As of September 2022, the numbers of registered electric private cars and electric motorcycles/motor tricycles increased to 38 353 and 166 respectively; and the number of registered electric taxis, electric light and medium goods vehicles, electric private light buses and electric buses also increased to 323.

## **CONSULTATION**

31. With regard to the above legislative amendments, the TD has consulted relevant stakeholders, including registered vehicle manufacturers, vehicle body builders, spare part providers and vehicle maintenance services providers, etc., for each proposal set out in the paper. We have also consulted the Road Safety and Research Committee and Road Safety Council on items (I) to (VI) above. Members in general supported the proposed legislative amendments. Regarding item (VII), consultation with relevant stakeholders is in progress and we will consult the Road Safety and Research Committee, Road Safety Council and Transport Advisory Committee in due course.

## **WAY FORWARD**

32. The law drafting exercise is in progress. Upon its completion, we aim to submit the legislative amendment proposals to the LegCo within the first half year of 2023.

## **ADVICE SOUGHT**

33. Members' views are invited on the legislative proposals set out in the paper.

**Transport and Logistics Bureau**  
**Transport Department**  
**December 2022**

## Examples of Vehicles equipped with extendable aerial structures



Lorry crane



Tipper



Mobile crane



Aerial platform