

**For discussion  
on 21 July 2017**

**Legislative Council Panel on Transport  
Progress of the Review of Road Works Safety Requirements**

**PURPOSE**

This paper reports to Members on the latest progress of the review of road works safety requirements.

**BACKGROUND AND CURRENT SITUATION**

2. According to the Road Traffic Ordinance (Cap. 374), the Highways Department (HyD) has prescribed a “Code of Practice for the Lighting, Signing and Guarding of Road Works” (the Code)<sup>1</sup>. The Code is prescribed with reference to standards of other countries including the USA and Europe, based on local experience, and updated as necessary. When carrying out road works, contractors should follow the requirements of the Code to safeguard the safety of road users and road works workers. Furthermore, pursuant to Regulation 20 of the Road Traffic (Traffic Control) Regulations (Cap. 374G) (the Regulations), contractors shall, in accordance with Schedule 5 of the Regulations, erect signs, road markings, barriers and road hazard warning lanterns at the locations as stipulated in the Code, or otherwise it constitutes an offence. Non-compliance with other requirements of the Code may be relied upon in any civil or criminal proceedings by any party as tending to establish or negative any liability which is in question in those proceedings.

3. Since the issue of the First Edition of the Code in 1984, based on the technological development and practical requirements, HyD issued the Second, Third and Fourth Editions of the Code in 1989, 1996 and 2006 respectively.

---

<sup>1</sup> Taking into account the vehicle speed of different roads and road closure requirements for maintenance works, the Code specifies the detailed requirements for different types of devices (e.g. size, colour, materials, conditions necessitating the use of the devices, quantity to be placed, spacing and height, etc.) to ensure that signs will be clearly visible to road users from the anticipated distance to achieve the desired warning and guarding effect.

HyD included the mandatory requirement on the use of shadow vehicles for mobile operations (including setting up and removing lane closure, gully emptying, sweeping/watering, or emergency road surface repairs, etc.) on expressways<sup>2</sup> in the Fourth Edition of the Code in order to strengthen protection to the works area (see **Annex 1**). The works vehicle and the shadow vehicle shall also be equipped with warning lanterns and signs to provide early warning to other motorists. The Code also stipulates that, when carrying out maintenance works on expressways with lane closure, advance warning signs shall be displayed at least 600 metres in advance of the works area. Flashing arrow signs shall also be displayed where temporary diversion begins (see **Annex 2**). These requirements took effect on 1 July 2007.

4. Under its road maintenance contracts, HyD has required contractors to formulate safety plans and implement safety management systems to ensure that works are carried out safely. Foremen and safety officers / safety supervisors of the contractors shall also conduct site inspection to monitor safety in the execution of the works. HyD also conducts regular spot checks and surprise inspections to check the quality and safety of the maintenance works, including the compliance with the safety requirements specified in the Code. If any non-compliance is found, HyD will deduct payment according to contract mechanism. Serious non-compliance will be reflected in the contractor's performance reports. The past performance of contractors is one of the factors in considering their future tenders for public works contracts.

## THE REVIEW

5. With the objective to improve road works safety continuously, HyD convened an inter-departmental working group with the Transport Department and the Police to review the Code from 2014 to 2015, with reference to the latest developments in relevant technologies, local experiences, latest overseas standards and practices, as well as their suitability and feasibility for application to local conditions in Hong Kong. The draft version of the revised Code was substantially completed in early 2016.

---

<sup>2</sup> Expressway means any expressway designated as such by the Commissioner for Transport as an expressway under section 123(1) of the Road Traffic Ordinance (Cap 374) and delineated as such on a deposited plan.

6. In view of four traffic accidents involving road works workers and vehicles in mid-2016, the aforementioned working group further reviewed the enhancement of lighting, signing and guarding requirements comprehensively to improve the safety protection measures for road works.

7. Throughout the review process, the working group consulted and exchanged views with various stakeholders through different methods and channels on ways to further enhance the road works safety and on suitable amendments to the requirements prescribed in the Code. The suggestions and opinions collected from various channels have been thoroughly considered and suitably adopted in the revised Code. The consultation process includes exchanging views with relevant government departments and utility organizations in writing and in meetings, discussing with union representatives and frontline works personnel in meetings, as well as attending safety meetings and seminars organized by the Construction Industry Council and Road Safety Council, to collect views from occupational safety and health sector, representatives of the professional bodies of the construction industry, and other individual participants.

## **REVIEW FINDINGS AND RECOMMENDATIONS**

8. The findings of the review of road works safety requirements by the working group and the major proposed revisions to the Code are summarized below:

- (i) The requirements and practices of the lighting, signing and guarding measures related to road work sites adopted in Hong Kong are similar to those of other advanced countries (such as UK, USA and Singapore).
- (ii) In order to oblige the persons responsible for the works to consider more thoughtfully in planning road works, the Code shall emphasize items that require particular attention, including the provision of sufficient safety clearance, adequate working time, space, and safety protection in works area in order to reduce the risk faced by road users and road workers.
- (iii) The provision of sufficient advance warning to motorists is very important in the arrangement of road works. The recommendations on revising the

Code include upgrading the requirement on retroreflective material for temporary traffic signs, and enhancing the application guidelines on flashing arrow signs and temporary variable message signs to provide clearer directions to motorists.

- (iv) To further minimize the risk of vehicle crashing into a work site and to reduce the consequential damage or injury to workers, it is recommended to extend the application of shadow vehicles equipped with truck-mounted attenuator and enhance the associated technical requirements in the Code. They include:
  - (a) For road works on public roads with a speed limit of 70 kilometres per hour (km/h) or above (including expressways), the contractors are required to provide shadow vehicles equipped with truck-mounted attenuator (or temporary safety barriers with an appropriate containment level) and a longitudinal safety clearance zone (buffer zone) (see **Annex 3**) in front of the works area;
  - (b) The prevailing requirements of providing shadow vehicles equipped with truck-mounted attenuator, flashing arrow signs, flashing beacons and signage when conducting mobile operations (such as setting up and removing lane closure, emptying a gully, sweeping/watering, or emergency road surface repairs) on expressways will be applied to mobile operations on all public roads with a speed limit of 70 km/h or above; and
  - (c) The specification of retroreflectivity on the rear of truck-mounted attenuator on shadow vehicles will be upgraded for better visibility to motorists, and the minimum weight of shadow vehicle will be clearly specified to enhance the protection for workers.

9. HyD has incorporated the safety protection measures mentioned in paragraph 8(iv) above into the newly revised Code and gazetted the revised Code on 16 June 2017 in accordance with the Ordinance. This revised edition is the Fifth Edition of the Code. To allow the industry to get prepared for the new measures for full implementation in all road works, the revised Code shall take effect from 1 January 2018.

10. In order to enhance safety protection to workers at the earliest before the revised Code comes into effect, starting from 1 November 2016, HyD has mandated the implementation of the safety measures specified in 8(iv) above in all works under its management through administrative arrangements. HyD has also introduced the requirements of these measures to other government departments and utility organizations carrying out road works on public roads and encouraged them to implement the same safety protection measures as soon as practicable through administrative arrangements. The construction industry generally supported and agreed to implement the relevant measures.

## **LEGISLATIVE AMENDMENT**

11. Besides, in order to further enhance the regulation of the traffic control and guarding measures implemented in road works, we are considering relevant legislative amendment. The initial proposal includes the amendment of relevant regulations stipulated in the Regulations (Cap. 374G) to incorporate the guarding requirements in the Code (including the use of shadow vehicles for road works on public roads with speed limit of 70 km/h or above) into the Ordinance. Any person contravening such provision has to bear criminal liability. HyD is now seeking advice from the Department of Justice on the proposed legislative amendment and will consult the Legislative Council as appropriate.

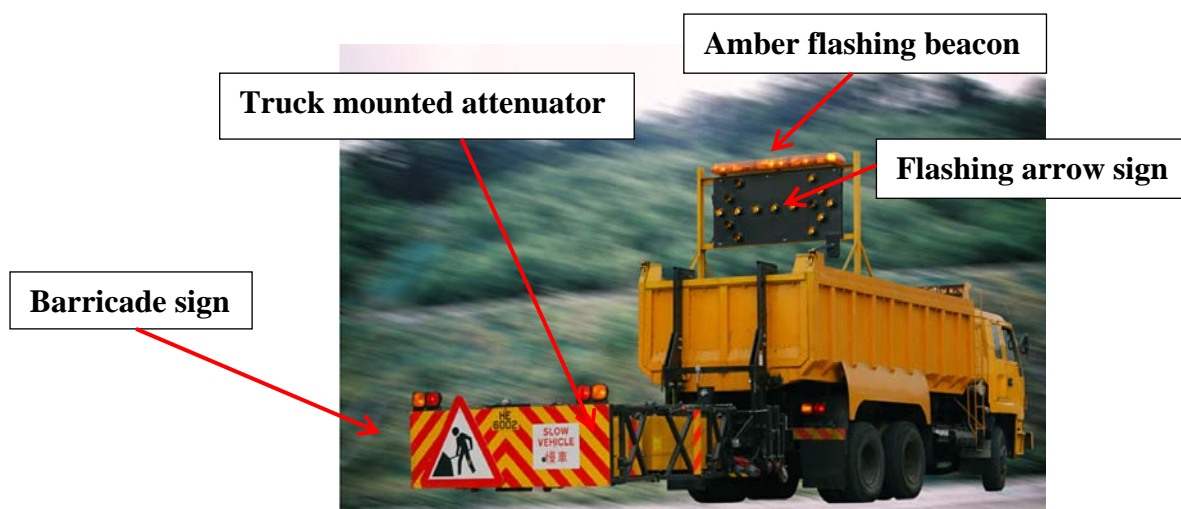
## **CONCLUSION**

12. Members are invited to note the latest progress of the review of road works safety.

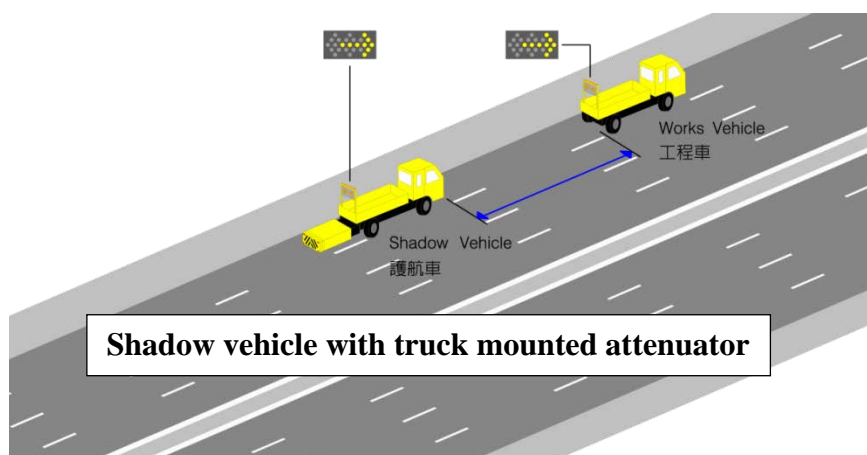
**Transport and Housing Bureau**  
**Highways Department**  
**July 2017**

## The use of shadow vehicle for mobile operations on expressways

When conducting mobile operations on expressways, it is necessary to use shadow vehicles. Shadow vehicles must be equipped with truck mounted attenuator, amber flashing beacon, flashing arrow sign and barricade sign. Please refer to **Figure 1** for the equipment of a shadow vehicle. According to the speed limit of the road and mode of operation, the works vehicle and shadow vehicle need to maintain a proper buffer distance (**Figure 2** and **Figure 3**). The relevant requirement on buffer distance can be found in the Code.



**Figure 1 : Shadow vehicle**



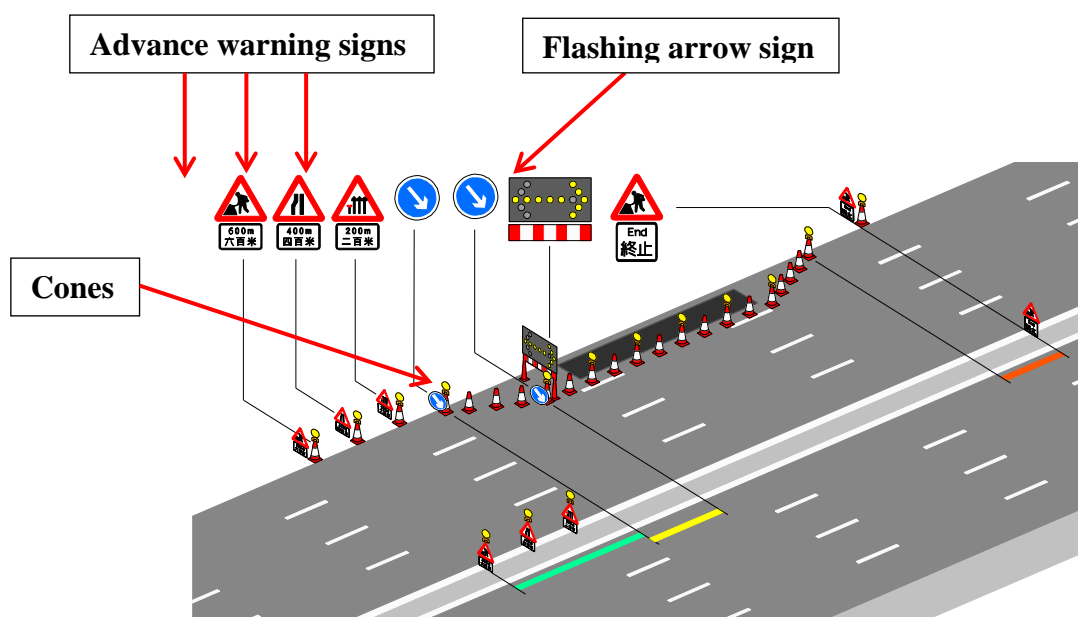
**Figure 2 : Works vehicle shall be escorted by a shadow vehicle**



**Figure 3 : Escorted by a shadow vehicle with truck-mounted attenuator when conducting mobile operations**

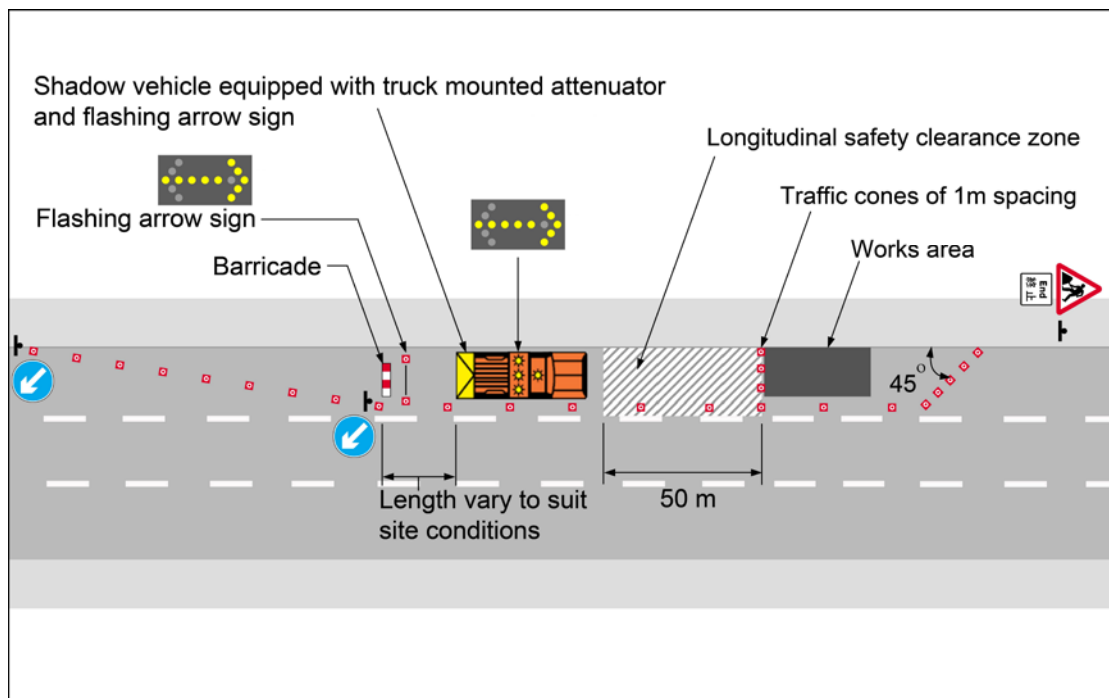
### Arrangements for lane closure on an expressway

The following figure shows the typical signs (including advance warning signs, cones and flashing arrow signs, etc.) used during lane closure on an expressway (see below **Figure**). The Code stipulates that, when carrying out maintenance works on expressways with lane closure, advance warning signs shall be displayed at least 600 metres in advance of the works area. Flashing arrow signs shall also be displayed where temporary diversion begins. The detailed display requirements of advance warning signs and cones can be found in the Code. A flashing arrow sign has a matrix of individual lights that can flash on and off in a predetermined manner to show signs such as “arrow to the right” or “arrow to the left”. When there are stationary or slowly-moving works vehicles on an expressway, it must be used to warn drivers to take special care. The mounting height of flashing arrow sign should not be less than 3.3 metres in order to provide advance warning.



**Figure : Advance warning signs, cones and flashing arrow signs**





**Figure 1 : Guarding arrangement for works on public roads with a speed limit of 70km/h or above**



**Figure 2 : Provision of shadow vehicle with truck-mounted attenuator and longitudinal safety clearance zone in front of lane closure**