

**For discussion  
on 27 April 2018**

**Legislative Council Panel on Transport  
Legislative amendments on  
enhancing the safety requirements of road works**

**PURPOSE**

To further strengthen the regulation of traffic control and guarding measures implemented for road works, we propose to amend the relevant legislation. This paper aims to seek Member's views on our proposal.

**BACKGROUND AND CURRENT SITUATION**

2. According to the Road Traffic Ordinance (Cap. 374) (the Ordinance), the Highways Department (HyD) has prescribed a "Code of Practice for the Lighting, Signing and Guarding of Road Works" (the Code). The Code is prescribed based on local experience with reference to standards of other countries, including the USA and Europe, and will be updated as necessary. When carrying out road works, the contractor should follow the requirements of the Code to safeguard the safety of road users and road works operatives.

3. Pursuant to regulation 20 of the Road Traffic (Traffic Control) Regulations (Cap. 374G) (the Regulations) (see **Annex I**), the contractor shall, in accordance with Schedule 5 of the Regulations (see **Annex II**), erect signs, road markings, barriers and road hazard warning lanterns at the locations as stipulated in the Code; 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.

4. The HyD has earlier amended the Code and published the revised Code in the Gazette on 16 June 2017 pursuant to the Ordinance. This revised edition is the Fifth Edition of the Code and has taken effect from 1 January 2018. The major revisions to the Code include the enhancement of guarding requirements, such as extending the application of shadow vehicles equipped with truck mounted attenuator (TMA) with enhanced associated technical requirements, and the use of other temporary guarding equipment to further minimise the risk of a vehicle crashing into a work site during accident and to reduce the consequential damage or injury. Other major revisions to the Code include the strengthening of the

requirements on retroreflective material for temporary traffic signs, enhancing the application guidelines on flashing arrow signs and temporary variable message signs to provide clearer directions to motorists. We have reported the above revisions to the Code to the Panel on Transport of the Legislative Council (LegCo) at its meeting on 21 July 2017 (see **Annex III** for the relevant discussion paper).

5. In view of the four traffic accidents involving roadworks operatives and works vehicles in mid-2016, we indicated in the discussion paper issued in July last year that we are considering relevant legislative amendment with a view to further strengthening the regulation of traffic control and guarding measures implemented during road works. After consulting the Department of Justice (DoJ), we now present to Members our proposed legislative amendments.

### **(i) Lack of Guarding Requirements in Existing Legislation**

6. The existing legislation only specifies the requirements on lanterns, traffic signs and road markings at road works to be observed by the person responsible<sup>1</sup>; as well as the criminal liability of contravening such requirements. However, there is no corresponding explicit requirement on the provision of guarding under the Regulations.

7. At present, any person responsible who without reasonable excuse contravenes any of the requirements on lanterns, traffic signs and road markings at road works specified under the Regulations commits an offence and is liable on first conviction to a fine of \$5000 and imprisonment for 3 months; and on second or subsequent conviction to a fine of \$10000 and imprisonment for 6 months. As for the requirements of guarding equipment at road works, although there are such requirements stipulated in the Code, pursuant to section 109(5) of the Ordinance (see **Annex IV**), failure of any person to observe any provisions in the Code shall not of itself render that person liable to criminal proceedings but could only 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. Even though regulation 22(1) of the Regulations stipulates that the person responsible shall provide sufficient fencing around the excavation, such requirement is to prevent any pedestrian or vehicle from falling into the excavation or being otherwise endangered, rather than intended for the safeguard of operatives when carrying out road works.

8. In view of the above observations, we propose to include requirements of guarding measures in the Regulations, i.e. the person responsible shall place suitable guarding equipment at appropriate position, for example, the use of

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<sup>1</sup> According to regulation 19 of the Regulations, "person responsible" in relation to any road works, obstruction or excavation means the person under whose supervision or direction the road works are carried out or the obstruction or excavation is caused or made.

temporary safety barrier or shadow vehicle for guarding road works ahead. Shadow vehicles should be equipped with TMA, amber flashing beacon, flashing arrow sign and barricade sign, in order to minimise the risk of a vehicle crashing into a work site during accident and to reduce the consequential damage and injury. The criminal liability of such contravention will also be included in the Regulations.

## **(ii) Direct Reference of the Code's Requirements in Schedule 5 of the Regulations**

9. Pursuant to regulation 20 of the Regulations, the person responsible shall, in accordance with Schedule 5 of the Regulations (Schedule 5), erect signs, road markings, barriers and road hazard warning lanterns at the locations as stipulated in the Code. Otherwise, it constitutes an offence. There are existing provisions in Schedule 5 which refer directly to the Code (e.g. the abovementioned location of signs, road markings, barriers and road hazard warning lanterns). Such reference appears to be contrary to the position in section 109(5) of the Ordinance (i.e. failure of any person to observe any provisions in the Code shall not of itself render that person liable to criminal proceedings). To avoid the above situation, we propose to delete the requirements in Schedule 5 which directly referenced to the Code, and instead add to Schedule 5 substantive requirements of signs, road markings, road hazard warning lanterns and guarding, e.g. require person responsible to provide at appropriate location of road works suitable guarding so as to separate trafficked carriageways from site area of road works, to provide shadow vehicle with TMA appropriately for guarding road works ahead from vehicles accidentally crashing into the road works site area and to place at road works suitable traffic signs, road markings and road hazard warning lanterns for the safety of road users and operatives. In addition, we propose to spell out in the Regulations that it shall be a defense to a relevant charge if the requirements stipulated in the Code are complied with.

## **(iii) Obsolete lantern requirement and revoked transitional provisions in the Regulations**

10. There are some obsolete lantern requirements in Schedule 5 of the Regulations, such as flashing rate standard and specifications for lantern that is no longer in use (e.g. kerosene burning lantern). Separately, the transitional provisions<sup>2</sup> in paragraph 5 of Schedule 6 are obsolete. We propose to remove the relevant provisions.

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<sup>2</sup> Paragraph 5 of Schedule 6 of the Regulations stipulates that "During the period of 12 months after the commencement of Part IV of these regulations a lantern used to indicate to traffic the limits of any road works on a road shall be treated as if prescribed by paragraph 3 of Schedule 5 notwithstanding that it is not in every respect of the size, colour and type prescribed by that paragraph, if that lantern emits, a steady red light achieved by means of an electric lamp or, a paraffin lamp with lenses having diameters not less than 57 mm, or a red intermittent light."

## **CONSULTATION WITH STAKEHOLDERS**

11. During the revision of the Code, we have sounded out to stakeholders (including representatives from the industry, Construction Industry Council and the Transport Advisory Committee) that we are actively considering the incorporation of requirements of guarding measures into the relevant legislation. The industry generally welcomes the government's effort in the continuous improvement of the safety of road works.

## **NEXT STEP**

12. The drafting of the legislative amendments is in progress; and upon completion of the relevant work, we will table the legislative amendments to the LegCo for negative vetting.

## **ADVICE SOUGHT**

13. Members' views are invited on the legislative amendments proposed in the paper with regard to enhancing the safety requirements of road works.

**Transport and Housing Bureau  
Highways Department  
April 2018**

**20. Provision of lights and signs at road works**

- (1) For the purpose of lighting, signing and guarding road works the person responsible shall—
  - (a) erect and maintain prescribed traffic signs and prescribed road markings that the Director may require and, during the hours of darkness, erect and maintain lanterns of the type prescribed in Schedule 5; and (*L.N. 72 of 1990; L.N. 350 of 1990*)
  - (b) place at the road works such lanterns, traffic signs and road markings in the manner prescribed in Schedule 5.
- (2) All traffic signs erected under subregulation (1)—
  - (a) shall, subject to subregulations (3) and (4), be illuminated by the incorporation of a material approved by the Director capable of reflecting light; and
  - (b) may be illuminated by any means of lighting approved by him.
- (3) Subregulation (2)(a) shall not apply to traffic signs erected in accordance with Schedule 5 where the signs are illuminated to the satisfaction of the Director by internal lighting.
- (4) No reflecting material shall be applied to any black part of a traffic sign erected under subregulation (1).
- (5) All signs erected under subregulation (1) shall have marked on them in English and Chinese, in a manner approved by the Director, the name of the person responsible.

**SCHEDULE 5**

[reg. 20]

**LIGHTING, SIGNING AND GUARDING OF ROAD  
WORKS**

1. The location of signs, road markings, barriers and road hazard warning lanterns at road works shall be in accordance with that set down in the Code of Practice.
2. A lantern showing either a steady or an intermittent light may be used to indicate to traffic the limits of a temporary obstruction of a road and, without prejudice to paragraph 4, shall be of the size, colour and type prescribed by paragraph 3.
3.
  - (1) The colour of the light shown by a lantern referred to in paragraph 2 whether steady or intermittent, shall be amber and the external surfaces of the body of the lantern shall be coloured yellow.
  - (2) Lanterns may be so constructed that light is emitted from 1, 2 or 3 sides or from every horizontal direction but each lens or light enclosure of the lantern shall be—
    - (a) if the light so shown is emitted from the lantern in only 1, 2 or 3 horizontal directions, of such shape and size that the perimeter of its horizontally projected area on to any vertical plane shall be capable of lying wholly inside a circle having a diameter of 190 mm and wholly outside a circle having a diameter of 100 mm; and
    - (b) if the light so shown is emitted from the lamp in every horizontal direction, of such shape and size that the perimeter of its horizontally projected area on to any vertical plane shall be capable of lying wholly within a square having sides of 125 mm and wholly outside a square having sides of 40 mm in length.
  - (3) Each lantern shall be illuminated separately and by a single source of light.
  - (4) Each lantern shall have a light transmitting cover or lens protecting the source of the light.
  - (5) The height of the centre of any lens or light transmitting cover of a lantern from the surface of the road in its immediate vicinity shall not exceed 1.2 m.
  - (6) Each lantern shall have in association with the lens or light transmitting cover a device having an area of not less than 50 cm<sup>2</sup> fitted with amber reflectors or amber reflecting material and positioned on the lantern so that the device faces oncoming vehicles.

- (7) Where a lantern is used which shows a steady light, then the luminous intensity of the light shall not be less than 1 candela measured within 5 degrees above and below and 10 degrees left and right of the principal axis if the light so shown is emitted from the lantern in only 1, 2 or 3 directions, and measured within 5 degrees above and below the horizontal plane around the vertical axis of symmetry if the said light is emitted in every direction.
  - (8) Where a lantern which shows an intermittent light is used then that lantern shall be of such size and type that the rate of flashing shall be not less than 90 flashes per minute and not more than 150 flashes per minute and the peak luminous intensity measured in accordance with subparagraph (7) shall be not less than 1.5 candelas.
  - (9) Lanterns used for the purposes indicated in this Schedule shall be of robust design and shall be capable of complying with the performance standards set down in the Code of Practice.
  - (10) All electrically operated lanterns and any associated connections, parts or means of operation shall comply with the standards set down in the Code of Practice.
  - (11) Any cable supplying power to the lanterns shall not carry a voltage greater than 50 volts in the vicinity where the general public reasonably have access.
  - (12) Radio interference from any current interrupting device shall be suppressed in accordance with the specifications referred to in the Code of Practice.
  - (13) All kerosene burning lanterns shall be of such type and shape as to comply with the standards of construction set down in the Code of Practice.
4. In this Schedule "Code of Practice" (工作守則) means the Code of Practice for the Lighting, Signing and Guarding of Road Works prescribed by the Director under the Ordinance.

**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.

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<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.

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<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**

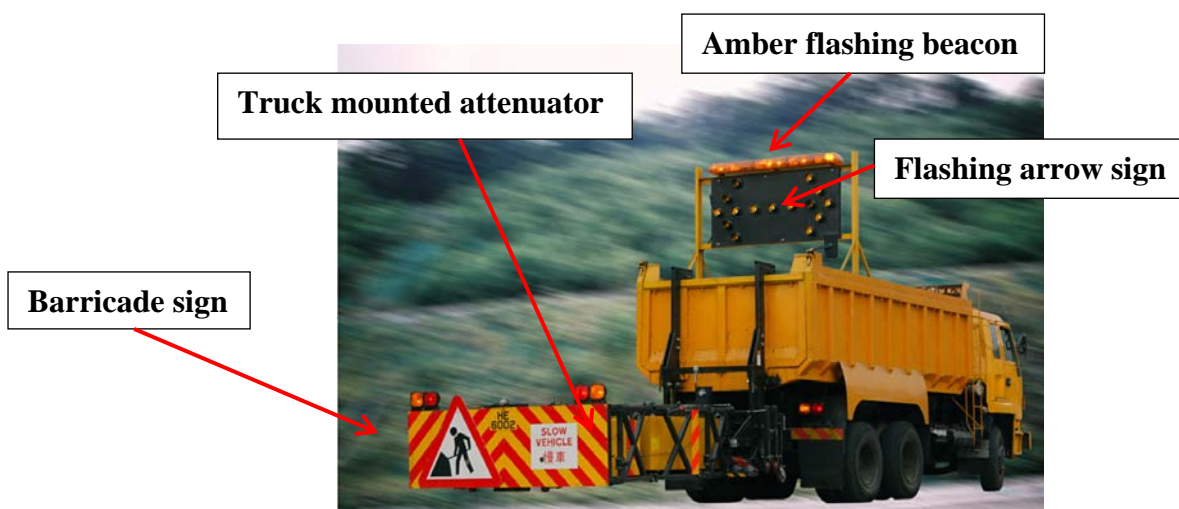
12. Members are invited to note the latest progress of the review of road works safety.

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

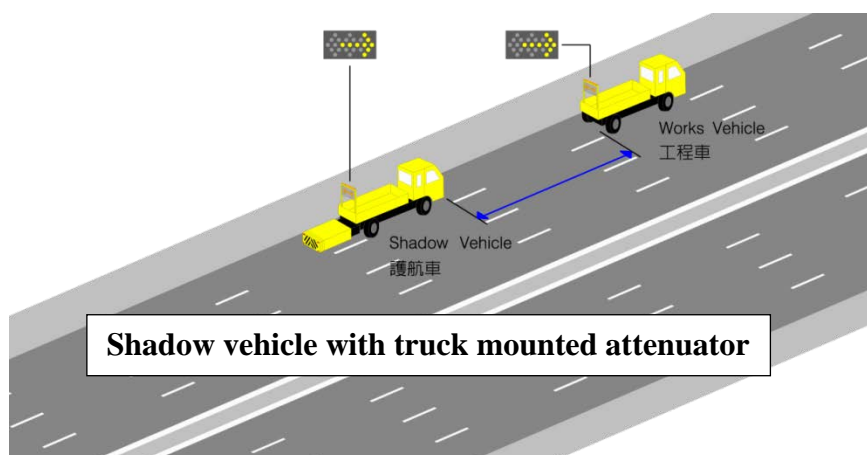
## Annex 1

### 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**

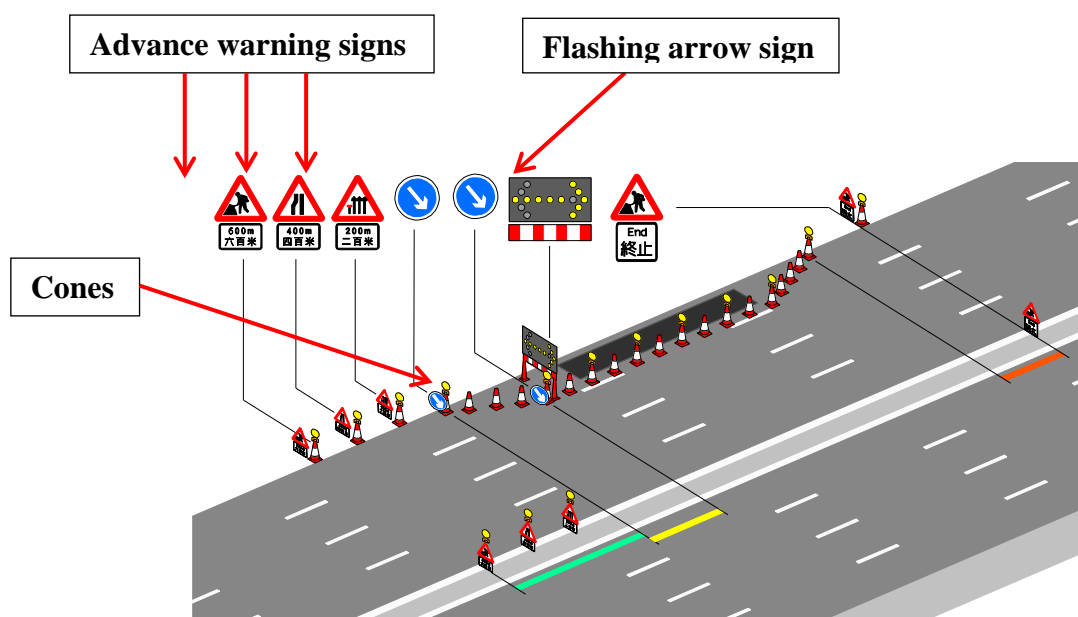


**Figure 3 : Escorted by a shadow vehicle with truck-mounted attenuator when conducting mobile operations**

## Annex 2

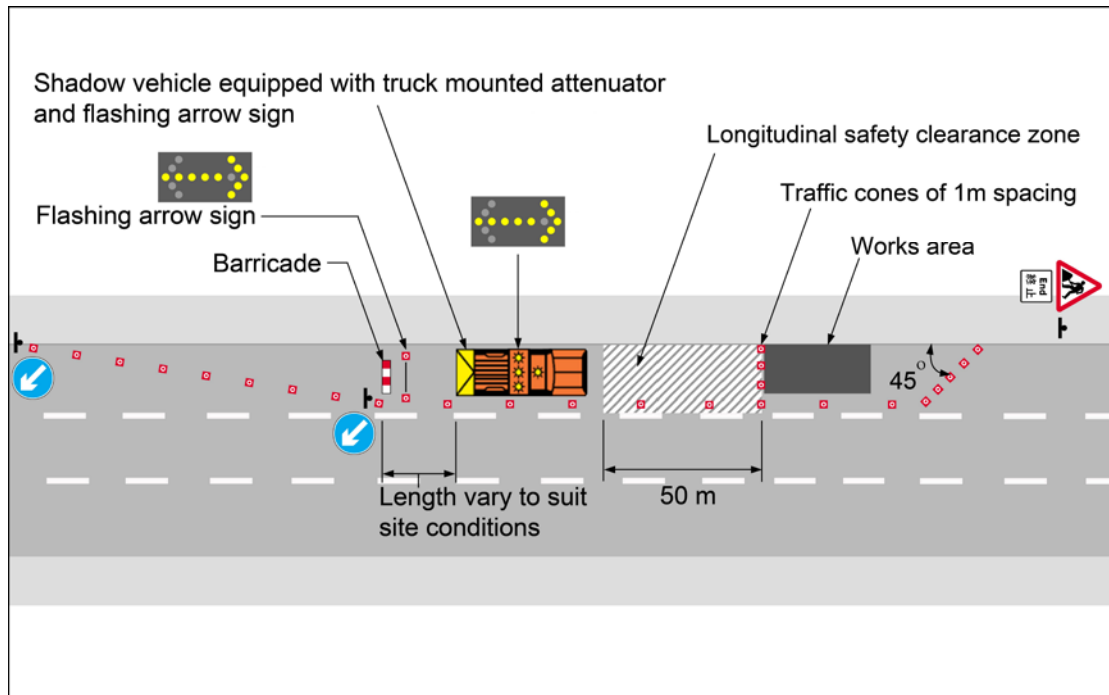
### Arrangements for lane closure on an expressway

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**

## Annex 3



**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**



**109. Road users' code and codes of practice**

- (1) The Secretary may cause to be prepared a code (in this section referred to as the road users' code) comprising such directions as appear to him to be proper for the guidance of persons using roads and may from time to time revise the code by revoking, varying, amending or adding to the directions therein in such manner as he thinks fit. (*Amended 89 of 1994 s. 24; L.N. 106 of 2002; L.N. 130 of 2007; 6 of 2012 s. 2*)
- (2) The road users' code and any alterations proposed to be made in the provisions of the code on any revision thereof shall as soon as approved by the Secretary be laid before the Legislative Council. (*Amended 89 of 1994 s. 24; L.N. 106 of 2002; L.N. 130 of 2007; 6 of 2012 s. 2*)
- (3) The Director of Highways may by notice in the Gazette, prescribe and from time to time revise a code of practice for the lighting, signing and guarding of road works. (*Amended 66 of 1984 s. 11; L.N. 127 of 1986*)
- (4) The Commissioner may by notice in the Gazette prescribe and from time to time revise a code of practice for the loading of vehicles.
- (4A) The Commissioner may by notice in the Gazette prescribe and from time to time revise a code of practice comprising such directions as appear to him to be proper for the guidance of owners of private roads in relation to any regulations made under—
  - (a) section 11 which relate to traffic signs or road markings; or
  - (b) section 121 which relate to signs or road markings within the meaning of that section. (*Added 80 of 1988 s. 10*)
- (5) A failure on the part of any person to observe any provisions of the road users' code and any code prescribed under subsection (3) or (4) shall not of itself render that person liable to criminal proceedings of any kind but any such failure may in any proceedings whether civil or criminal and including proceedings for an offence under this Ordinance be relied upon by any party to the proceedings as tending to establish or negative any liability which is in question in those proceedings.
- (6) For the purpose of section 34 of the Interpretation and General Clauses Ordinance (Cap. 1), the road users' code prescribed under subsection (1), a code issued after the commencement of the Road Traffic (Amendment)(No. 2) Ordinance 1994 (89 of 1994), and any alterations of such road users' code shall be deemed to be subsidiary legislation. (*Added 89 of 1994 s. 24*)

*(Amended 20 of 1984 s. 2)*