

For discussion
6 February 2012

Legislative Council Panel on Transport

Improvement on Emergency Crossings on Major Roads

Purpose

This paper briefs Members on the Highways Department's (HyD) plan to improve emergency crossings (ECs) and contingency crossings (CCs) in central dividers of major roads. The Department plans to replace conventional tubular crash gates with "movable steel barriers" (MSBs) and "removable concrete barriers" (RCBs) to enhance road safety.

ECs and CCs of Roads

2. At present, central dividers are provided on dual carriageways of major roads to separate vehicles travelling in opposite directions to ensure road safety. However, to fulfill the operation need for emergency vehicles (such as fire engines, ambulances or police cruisers) that they may have to cross central dividers to get into the opposite carriageway during emergencies, ECs are provided at selected locations of the central dividers so that they could get into the opposite carriageway in a short time during the above situations. Besides, to cater for non-emergency but serious traffic congestion situations, CCs are provided at selected locations. They will be opened if needed to facilitate traffic diversion by contra-flow.

3. When not in use, ECs and CCs are used to be closed by tubular crash gates (see [Figure 1](#)) to provide separation between traffic flows in opposite directions and to prevent abuse of use by road users.

MSBs and RCBs

4. With a view to enhancing road safety in Hong Kong and further modernising road facilities, the Administration has been planning to improve the separation installations in ECs and CCs. Apart from opening for passage of vehicles during emergencies and when needed, we also aim at enhancing the safety of the crossings when not in use during normal times. For this, the Administration has been studying the

replacement of tubular crash gates with more robust barriers.

5. To enhance the containment level of barriers installed at ECs and CCs, HyD had studied the use of MSB and RCB at the openings of central dividers on dual carriageways. By making reference to the latest overseas information and testing results, the HyD conducted trials on MSB and RCB at Lung Fu Road (Tuen Mun) and North Lantau Highway respectively, and carried out operation tests. The results of the trials indicated that these two types of barriers provided better protection, and could be opened expeditiously when needed for passage of vehicles. The HyD has been gradually installing MSBs and RCBs at selected ECs and CCs on major roads to replace tubular crash gates that were being used. The details and advantages of these two types of barriers are explained in the ensuing paragraphs.

(I) MSBs

6. MSBs are specially designed for ECs which can be opened in a short time for passage of emergency rescue vehicles. Under normal circumstances, a MSB rests on ground, with robust hinged connections at two fixed ends, so as to provide adequate containment capacity. When required, the gate can be opened expeditiously with the following simple operation sequence:

- (i) open the steel covers of the hinged connections at the two fixed ends;
- (ii) remove the steel pin in the hinge at one of the end connections so that the steel gate can be swung opened from this end;
- (iii) jack up the gate with the built-in mechanism so that the gate is fully supported by rubber rollers at the bottom;
- (iv) swing open the gate manually from the end with steel pin removed.

7. In general, a MSB can be opened to 45 degrees to provide adequate space for passage of emergency vehicles. A MSB can be easily opened or closed manually within two minutes. It also provides adequate containment capacity when closed so as to prevent vehicles from straying onto the opposite traffic lanes during crashes. A MSB is therefore an effective and safe installation for use at ECs. Figure 2 shows the appearance of a MSB and its operation.

8. To familiarise firemen, ambulance crews and police officers with the operation of MSBs, the HyD would arrange trial sessions as necessary for staff of fire and police stations within the relevant districts after installation of MSBs.

(II) RCBs

9. For some of the openings in central dividers, the opportunity of being used as ECs is low. However, in cases of major traffic incidents, these openings may be opened to facilitate traffic diversion. This kind of openings are known as CCs, and RCBs would be installed (see [Figure 3](#)).

10. RCBs are a series of short precast concrete barrier sections interconnected by hinges and locked with steel pins that forms a complete barrier wall. This type of barrier is designed to be robust. After installation, it is very effective for preventing errant vehicles from straying onto opposite traffic lanes during accidents.

11. The main difference between ECs and CCs is the requirement of opening time. For some non-urgent incidents, such as serious traffic congestion in one direction due to traffic incidents, CCs would need to be opened for traffic diversion. The HyD would arrange contractors to remove the steel locking pins between precast units by hand, after which the RCBs could be removed with suitable hoisting devices. The RCB system allows for opening of crossings in more than one hour. As compared to MSBs at ECs, the use of RCBs at CCs can ease maintenance and reduce installation costs.

12. The above two types of barriers provide flexibility to facilitate passage of vehicles across central dividers when needed. As compared with the use of conventional tubular crash gates, these two new types of barriers with better containment could enhance road safety by preventing errant vehicles from straying onto the opposite traffic lanes during accidents.

Progress of Improvement Works

13. The HyD has planned to install MSBs or RCBs, depending on the functions of the crossings, at 127 openings in central dividers of major roads in Hong Kong. As at end 2011, installation of 37 MSBs and 51 RCBs have been completed. According to the Department's programme, over 90% of the improvement works will be completed by end of 2013.

Regarding the remaining works, as they fall within the project boundaries of other road projects, they will be completed in association with the relevant projects within a few years

Highways Department
February 2012



Figure 1: Tubular Crash Gates



Figure 2: Movable Steel Barriers



Figure 3: Removable Concrete Barriers