

政府總部  
運輸及房屋局

運輸科  
香港添馬添美道2號  
政府總部東翼



**Transport and  
Housing Bureau**  
**Government Secretariat**

**Transport Branch**  
East Wing, Central Government Offices,  
2 Tim Mei Avenue,  
Tamar, Hong Kong

Our ref. : THB (T) L2/1/44  
Your ref. : CB4/PS/1/16

Tel no. : 3509 8159  
Fax no. : 2537 5246

Ms Sophie LAU  
Clerk to Subcommittee on Matters Relating to Railways  
Legislative Council Panel on Transport  
Legislative Council Complex  
1 Legislative Council Road  
Central  
Hong Kong  
(Fax no.: 2840 0716)

24 June 2020

Dear Ms LAU,

**Urging the Administration to address  
the failure of MTR's Automatic Train Protection System**

Thank you for your letter dated 21 March 2019 conveying a letter from Hon Jeremy TAM on the captioned subject. Regarding the incident which occurred during a drill for the new signalling system on the Tsuen Wan Line in non-traffic hours on 18 March 2019, the Government and the MTR Corporation Limited ("MTRCL") submitted a paper (LC Paper No. CB(4)1097/18-19(01)) on 5 July last year to the Legislative Council Subcommittee on Matters Relating to Railways to report the relevant causes of the incident, findings and recommended improvement measures. On 21 April and 9 June 2020, we also gave detailed replies to Hon TAM's enquiries about the incident made in two other letters. We apologise for not being able to reply to Hon TAM's letter dated 20 March earlier.

**Causes of the incident**

2. The MTRCL Investigation Panel concluded that the incident reflected inadequacies in the contractor's software development process of the new signalling system with respect to software quality assurance, risk assessment and the extent of simulation when performing a software change, which resulted in software

implementation errors and failure of the Warm-standby Computer System in re-creating the “Conflict Zone Data”, which were essential to prevent two trains from running on conflict routes at the same time. In addition, the Warm-standby Computer System still took over as the Primary Computer System in the absence of the “Conflict Zone Data”, resulting in the scenario where two trains were allowed to enter the crossover at Central Station at the same time which caused the incident. For details, please refer to Part 5 of the MTRCL’s investigation report. The incident was not caused by a malfunction of the Automatic Train Protection System (“ATPS”).

### **Automatic Train Protection System**

3. The various signalling systems of MTR network are equipped with the ATPS, the main function of which is to prevent trains from speeding and passing specified stopping points, in order to ensure a safe distance between trains. The ATPS is a fundamental configuration of signalling systems which operates at all times and gives suitable instructions to trains according to data on trains and tracks (including the “Conflict Zone Data”) of various railway sections. These instructions include monitoring of the distance between nearby trains, adjustment of train speed, automatic braking of trains (e.g. when a train going beyond a safe distance between trains or the speed of a train exceeding a certain threshold) when necessary, etc.

4. There is no difference between deceleration and braking of trains caused by ATPSs and any other general automatic deceleration and braking of trains under signalling systems (e.g. at present, the automatic deceleration and braking of trains are generally conducted without captains’ manual control when trains approach stations). Both of them are part and parcel of normal system operation. Therefore, the MTRCL does not keep any statistics on “the numbers of automatic braking of trains by ATPSs” mentioned in Hon TAM’s enquiries.

5. As mentioned in paragraph 2 above, the incident related to the new signalling system which occurred on 18 March 2019 was caused by the error of the “Conflict Zone Data”, instead of malfunctioning of the ATPS. In fact, the ATPSs of the signalling systems on all lines of MTR network have never failed to function and there has been no error of “Conflict Zone Data” which has affected railway safety. After the incident on 18 March 2019, the MTRCL has re-examined the ATPSs on all existing railway lines and confirmed that they are all operating normally with a view to ensuring railway safety.

Yours sincerely,

(Veronica TSE)  
for Secretary for Transport and Housing

c.c.:  
Electrical and Mechanical Services Department  
MTR Corporation Limited

(Attn.: Mr TSE Lok-him)  
(Attn.: Mr Y C CHAN)