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24 August 2017

Ms. Doris LO
Clerk to Subcommittee
Subcommittee on Matters Relating to Railways,
Panel on Transport,
Legislative Council Complex,
1 Legislative Council Road,
Central, Hong Kong

Dear Ms. LO,

Panel on Transport
Subcommittee on Matters Relating to Railways

Incident occurred on MTR Kwun Tong Line on 5 August 2017

I refer to your letter dated 15 August 2017. Regarding the letters from Hon LAU Kwok-fan, Hon Alvin YEUNG, Hon Tanya CHAN and Hon Jeremy TAM Man-ho on the MTR Kwun Tong Line (KTL) incident occurred on 5 August, upon consultation with the MTR Corporation Limited, we hereby provide our reply.

Sequence of events

2. According to MTRCL, a signalling system failure occurred on KTL at around 11 a.m. on 5 August (Saturday). Due to the failure, trains were required to operate at lower speed when running between Ngau Tau Kok and Lam Tim stations. Individual trains also needed to wait for a longer period of time at the beginning of the incident. Train service was maintained on KTL during the incident, but with less frequent train trips: train service for the

sections between Whampoa and Choi Hung stations and between Choi Hung and Tiu Keng Leng stations were maintained at 5 minutes and 15 minutes per train respectively¹. MTRCL deployed free shuttle buses to travel between some of the affected MTR stations to divert passengers. Additional staff were also deployed to affected stations to provide assistance and information to passengers.

3. Upon urgent repair by the MTRCL maintenance personnel, at around 2:30 p.m., the frequency of KTL train service was enhanced and maintained at an interval of 4 to 5 minutes, which was around 1 minute longer than the normal frequency of service (i.e. every 3.5 to 5.3 minutes per train). According to MTRCL's observation, the boarding and alighting arrangement at station platforms gradually resumed to normal after the enhancement of service frequency. Passengers were able to board the first or second arriving train. At around 9:30 p.m., the repair and examination works were completed and KTL service gradually resumed to normal after that.

Incident investigation

4. MTRCL at its preliminary investigation revealed that the incident was related to the failure of the signal data transmission between Kwun Tong Station and Kowloon Bay Depot central equipment room. Due to the failure, trains running between Ngau Tau Kok and Lam Tim stations were required to operate in manual mode instead of automatic mode. The train speed was thus lower, resulting in less frequent train trips. According to MTRCL, the design of the signalling system of KTL is relatively more sophisticated than that of other railway lines. For example, there are more points on the KTL tracks, as well as trackside circuits and transmission systems. Therefore, more time was used for fault diagnosis and recovery.

5. The Transport Department and the Electrical and Mechanical Services Department have requested MTRCL to submit a detailed report on the incident, and will conduct in-depth investigation. MTRCL announced on 7 August that an Executive Review Panel would be set up to look into the incident, including the cause of the failure of the signal data transmission, whether urgent repair was properly carried out, and whether the contingency arrangement during the incident could be enhanced (including whether the dissemination of information to the public during the incident was sufficient and timely). Relevant improvement measures will be proposed by the Panel. MTRCL also invited independent expert to join the Panel. It is expected that MTRCL can complete the investigation within two months (i.e. by October 2017). A report will be

¹ The incident occurred during the non-peak hours on weekend. Train service should be provided at an interval of 3.5 to 5.3 minutes under normal circumstances.

submitted to the Government. After the completion of the detailed investigation, the investigation outcome will be made public.

6. During the incident, KTL train service was maintained. According to the Service Performance Arrangement, the difference between the actual journey time during the incident and the normal journey time from the starting point to the destination point of a railway line will be taken into account in calculating the train service disruption. Under the established mechanism, the longest train service disruption during this incident was 83 minutes. Accordingly, MTRCL would have to set aside \$2 million for providing fare concessions to passengers in 2018. Details are at Annex.

Maintenance and renewal of railway assets

7. Railway is basically a set of enormous and complicated machinery driven by electricity, which comprises hundreds of thousands of various components. The major components include trains, tracks, power supply systems, signalling systems, communication systems and control centre, etc. MTRCL operates more than 8 200 train trips per day. Railway components are subject to wear and tear in daily operation and equipment failure is possible. To minimise the occurrence of such failure, MTRCL invests more than \$8 billion per year in maintaining and renewing its railway assets. MTRCL also has a stringent asset management system, which sets out appropriate procedures for the maintenance of various components of the railway system, including trains, tracks, power supply systems and signalling system equipment. Timely renewal will be arranged in accordance with the functions and performance of these railway components.

8. Besides, in 2015, the MTRCL made an additional commitment of about \$9.3 billion to procure 93 new trains that would be equipped with advanced operational systems and facilities, and to replace the signalling systems of seven railway lines. These two projects are long-term and strategic investments of MTRCL on asset replacement for the purpose of enhancing service quality. In 2015, the revenue of MTRCL's transport operation business in Hong Kong was \$16.9 billion. As a comparison, we can see that the MTRCL adopts an aggressive strategy in the investment in maintaining, renewing and procuring railway assets.

Conclusion

9. The duration of this KTL incident was relatively long from its occurrence to complete service resumption. Although train service was maintained during the incident, the frequency of service was reduced, leading to

certain level of inconvenience to the public. The Government noted the public concern over this incident. The Government has all along been emphasising the importance of railway safety and reliability. For this incident, we have urged MTRCL to conduct in-depth investigation, with a view to finding out the root cause and avoiding recurrence of similar incidents. MTRCL has also been asked to review whether the contingency arrangement during the incident could be enhanced.

A handwritten signature in black ink, appearing to be 'Donald Lam', written in a cursive style.

(Donald Lam)
for Secretary for Transport and Housing

Service Performance Arrangement

The Government and MTRCL completed the first review of the Fare Adjustment Mechanism in 2013 and introduced the Service Performance Arrangement (SPA). Under this mechanism, a fine would be imposed on MTRCL for serious service disruptions (defined as disruptions of 31 minutes or above) caused by factors within MTRCL's control in accordance with the pre-determined tiered table below. Each incident was subject to a maximum penalty of \$15 million. The objective of introducing the SPA is to encourage MTRCL to enhance the inspection and examination of various railway equipment and systems, so as to maintain good operational condition. Nevertheless, the specific arrangement should strike an appropriate balance and avoid imposing heavy burden over the front-line railway personnel, pushing them to rush the safety inspection and urgent repair under a tight timeframe to avoid punishment, which might prejudice service quality or even put railway safety at risk.

Train Service Disruptions	Level of penalty per incident
Equal to or more than 31 minutes but less than or equal to one hour	\$1 million
More than one hour but less than or equal to two hours	\$2 million
More than two hours but less than or equal to three hours	\$3 million
More than three hours but less than or equal to four hours	\$5 million
Each additional hour (or part thereof) exceeding four hours	\$2.5 million

2. Train service disruption is calculated in different ways in the following two scenarios –

- (a) if train service is maintained but the journey time is longer, the difference between the actual journey time during the incident and the normal journey time from the starting point to the destination point of a railway line will be taken into account in calculating the train service disruption. If there is more than one train affected by the incident, the train journey with the longest service disruption will be taken as the service disruption of the incident; and

- (b) if there is an interruption of train operation on any section of the railway, the duration between the occurrence of the interruption and resumption of train service will be taken into account in calculating the train service disruption.

3. During the incident on 5 August, KTL train service was maintained. Accordingly, the difference between the actual journey time during the incident and the normal journey time from the starting point to the destination point will be taken into account in calculating the train service disruption (i.e. the method mentioned in paragraph 2(a) above). As the longest train service disruption during the incident was 83 minutes, MTRCL would have to set aside \$2 million accordingly.

4. The current methodology for calculating train service disruptions has been adopted before the introduction of the SPA in 2013. It aims at reflecting the impact on passengers who need to travel on MTR during incidents through an objective and measurable way. Taking the current KTL incident as an example, if passengers travelled on KTL during the incident, the impact on them was a prolonged journey due to the incident. Such impact is reflected under the current SPA in calculating the penalties imposed on MTRCL.

5. The Government and MTRCL completed the second review of the Fare Adjustment Mechanism in early 2017. During the process, we reviewed whether the SPA could be enhanced, on the premise that railway safety should not be affected. It was concluded that, overall, the SPA had been operating smoothly over the past few years. While MTRCL should be held accountable for serious service disruptions, it should not be fined for disruptions of a shorter duration (i.e. below 31 minutes) in order not to put undue pressure on MTRCL's frontline staff, who otherwise might be tempted or pressurised to rush their repair works, putting railway safety at risk. In this regard, the arrangement of only penalising MTRCL for serious service disruptions, i.e. disruptions which last for 31 minutes or above, is retained. But, having regard to public views and in response to the Government's request, MTRCL agreed to raise the maximum penalty per incident under the SPA from \$15 million to \$25 million.