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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

24 January 2020

Dear Ms LAU,

**Creation of two directorate posts in
the Railways Branch of the Electrical and Mechanical Services Department
to enhance monitoring of railway safety**

At its meeting on 6 December 2019, the Subcommittee on Matters Relating to Railways requested the Transport and Housing Bureau to provide supplementary information regarding the captioned subject. The supplementary information provided by the Electrical and Mechanical Services Department regarding the captioned issue is enclosed for the Secretariat's reference.

Yours sincerely,

(Veronica TSE)
for Secretary for Transport and Housing

c.c.: Electrical and Mechanical Services Department (Attn.: Mr TSE Lok-him)

**Supplementary information on creation of two directorate posts in
the Railways Branch of the Electrical and Mechanical Services Department
to enhance monitoring of railway safety**

Railway is a green and efficient mass transit which alleviates traffic congestion and attenuates air pollution, and also unleashes the development potential of areas along the railway lines to facilitate housing and economic developments in the areas. Thus, the Government has all along adopted railway as the backbone of the public transport system. Under such policy, the MTR provides services to over 5.4 million daily passenger trips, accounting for about 42% of the public transport market in Hong Kong. At present, the MTR Corporation Limited (“MTRCL”) operates more than 8 000 train trips per day. Railway service is highly related to the daily living of the public. It is of paramount importance to enhance its safety and reliability so as to reduce the occurrence of incidents and to respond swiftly in the event of an incident.

2. The first underground railway line in Hong Kong has been operating for over 40 years. Respective railways and related facilities are entering into their replacement age. With an increasing railway patronage and expanding network, the railway facilities are heavily loaded over the years. While the overall number of incidents in the MTRCL’s network caused by equipment failure and resulting in service delay has remained stable in the past ten years, the recent railway incidents have often caused service disruption at the relevant stations or on railway lines concerned, or even disruption to the services of several connected railway lines. The impact has become more serious than before and the scope of the impact is extensive. It does not only cause inconvenience to the commuters, but also affects the relevant economic activities.

3. Therefore, the Government considers that there is a need to strengthen the manpower of the Railways Branch of the Electrical and Mechanical Services Department (“EMSD”) and develop new audit work to step up monitoring of the MTRCL. This will not only identify in the early stage the potential systemic defects, but also avoid the occurrence of incidents to ensure railway safety. It is also more cost-effective and economically efficient to conduct audits to identify the potential systemic defects and carry out preventive maintenance and replacement projects in the early stage. The two proposed Chief Engineer posts (Chief Engineer/Railways 3 and Chief Engineer/Railways 4) to be created in EMSD will be mainly responsible for adopting the new audit approach to conduct a comprehensive audit on the Asset Management System (“AMS”) and the Safety Management System (“SMS”) of the MTRCL’s entire railway system, and monitoring of the safety aspects of the MTRCL’s major asset replacement projects and other railway projects, including the Automated People Mover (“APM”) of the Three-Runway System (“3RS”), etc.

4. Regarding the comprehensive audit on AMS and SMS of the MTRCL's entire railway network, EMSD, as the railway safety regulator, mainly adopted the "compliance audit" approach to conduct audits in the past. Under this incident-based and risk-based approach, through sample site inspection on maintenance procedures, records and reports of railway system items, etc., audits were conducted to verify if the MTRCL has followed the requirements of its AMS and SMS. In addition, EMSD adopted the incident-oriented approach to conduct in-depth audits on the related system procedures (including management approach, maintenance of railway safety critical items, monitoring of maintenance procedures and progress, management of maintenance records, deployment of resources and manpower, etc.) after the occurrence of incidents.

5. To step up monitoring of railway safety, EMSD proposed to adopt a more direct, comprehensive and preventive audit approach based on the previous compliance audit and incident-oriented approach. Prior to the occurrence of an incident, EMSD will expand the scope of audit to assess whether the MTRCL's AMS and SMS are appropriate and implemented effectively. In addition, EMSD will expand the scope of sample and direct inspection to cover every major part of the railway system and conduct more in-depth review on maintenance procedures and records as well as the entire management system, including management approach, maintenance of railway safety items, etc., and make recommendations to the MTRCL for follow-up actions. The newly developed audit work will cover the existing 12 railway lines. EMSD will conduct audit on every major system (a total of five systems, including signalling system, permanent way, power supply system, rolling stock system and SMS) for each railway line, i.e. 60 audits will be required. It is estimated that each audit will take three months to complete, i.e. a total of 180 months will be required. At present, EMSD has three audit teams. According to the current plan in respect of the newly developed audit work, it is expected that the audits on all systems of each railway line will be conducted every five year. The new audits are required to be conducted continuously in the long term to ensure railway safety.

6. Currently, the Railways Branch of EMSD is led by the Assistant Director/Railways and supported by two Chief Engineers. Apart from monitoring the operation of MTR, their duties also include regulating the operation of tramways, peak trams, and APM at the Hong Kong International Airport. To cope with the new regulatory work, the two Chief Engineers of EMSD are currently sharing the relevant duties. However, with their own duties and the on-going new supervisory work, the workload of the two Chief Engineers is very heavy. They do not have spare capacity to further absorb the additional workload of the proposed posts for the enhanced regulatory regime, the comprehensive audit on AMS and SMS of the railway system,

monitoring of the major asset replacement projects and related work. Therefore, the two new Chief Engineer posts must be created as soon as possible in order to proceed with the relevant work to achieve the desired results. Upon the creation of two permanent directorate posts, they will oversee the newly developed audit work and around 110 inspections on new railways and major asset replacement projects. In addition, EMSD will continue to conduct the previous compliance audits and other incident-based inspections. EMSD expects to conduct around 390 inspections on railway safety in 2020. With the commencement of new railways and major asset replacement projects, the number of inspections on railway safety will further increase.

7. The MTR railway system is a huge railway network involving hundreds of thousands of equipment components, more than 8 000 train trips per day and over ten thousands of operation and maintenance staff. As mentioned above, the MTR provides services to over 5.4 million daily passenger trips, accounting for about 42% of the public transport market in Hong Kong. Therefore, the scope of the impact of railway incidents is extensive. It does not only cause obstruction to the commuters, but also indirectly affects the overall productivity of the community. Although no monitoring regime can completely avoid the occurrence of railway incidents, based on the past railway incident records, it is believed that the new monitoring approach will be more effective and comprehensive in auditing the MTRCL's AMS and SMS. The two proposed new Chief Engineer posts can ensure the effective implementation of the relevant audit work through monitoring of maintenance procedures and progress, analysis of maintenance records, introduction of new technology and enhancement of the governance of the management system, etc. with a view to avoiding the occurrence of railway incidents and minimising the impact of the incidents on the public, the community as a whole and the economy. We therefore believe that it is cost-effective to create the two proposed new Chief Engineer posts, which will not only further protect railway safety, but also ensure the overall socio-economic development.

Electrical and Mechanical Services Department
January 2020