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[English translation]

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(Attn: Ms Sophie LAU)

13 December 2023

Dear Ms LAU,

Panel on Transport
Subcommittee on Matters Relating to Railways
Meeting on 20 October 2023
Supplementary Information Related to Kwu Tung Station and Tuen Mun South Extension

Thank you for your e-mail of 24 October 2023. We provide for Members' reference the following supplementary information on the follow-up actions concerning the Kwu Tung (KTU) Station and Tuen Mun South Extension (TME) raised at the meeting of the Subcommittee on Matters Relating to Railways (RSC) held on 20 October 2023.

(a) Capital Cost of the KTU Station Project

As indicated by the Government in the paper for the RSC and at the RSC meeting on 20 October 2023, the capital cost for the KTU Station project was estimated to be $9.8 billion (in July 2023 prices). This included the construction cost of about $5.9 billion (in July 2023 prices) for the KTU Station, and the cost for the detailed planning and design and some advance works of the Northern Link (NOL) Main Line, which were estimated to be approximately $3.9 billion (in July 2023 prices). The estimated capital cost of the KTU Station of about $3.5 billion provided by the Government in 2021 was calculated on the basis of December 2015 prices and did not include the cost for the detailed planning and design and some advance works of NOL Main Line.

Apart from the adjustment in price levels, the increase in the estimated capital cost for the KTU Station project was due to the need to implement additional risk mitigation measures, following site investigation and tests during the detailed planning and design stage, to ensure safe operation of the Lok Ma Chau (LMC) Spur Line during construction; as well as the improved station design and equipment in accordance with the latest design standards. Also, the estimated capital cost was updated based on the checked and verified capital cost estimates. The key changes include -

(i). the groundwater level at the KTU Station was relatively high. Upon on-site drainage investigation and tests conducted by MTRCL during the detailed planning and design stage, it was confirmed that implementation of additional safety measures including underground grouting, provision of recharging wells and dewatering wells, etc. would be required so as to mitigate the risks to the operating LMC Spur Line brought by the excavation works;

(ii). installation of new electrical and mechanical systems and equipment supporting the railway operation is required in constructing the KTU Station on the LMC Spur Line. Following on-site checking of the existing electrical and mechanical systems during the detailed planning and design stage, MTRCL finalised the number of interface equipment required and the relevant technical requirements for connecting the new electrical and mechanical systems and equipment to the existing ones;

(iii). during the detailed design stage, MTRCL confirmed the need of an independent safety assessment mechanism, which includes detailed simulation tests, on-site safety tests, operational tests under normal and emergency situations, and testing for software modifications, etc., with a view to further securing the safety and reliability of the signaling system of the new railway project; and

(iv). in accordance with the station design standards updated in 2021, MTRCL improved the design and equipment provision of the KTU Station to enhance the efficiency of station management and maintenance, as well as enhanced security surveillance of station to safeguard passenger safety. Relevant enhancements include addition of canopies at station entrances, optimisation of station rooftop design to increase daylighting, increasing the number of station communication and surveillance devices, use of innovative technologies (such as the Internet of Things) to collect data for optimising the operation of air-conditioning and escalators systems and their maintenance schedule, and addition of network

security provisions to ensure the safe operation of the electrical and mechanical systems.

The Highways Department (HyD) had carefully reviewed the project estimates prepared by MTRCL, and engaged an independent checking consultant (ICC) to conduct cost checking with reference to the actual expenditures and market trends of recent railway projects, and taking into account the construction costs as well as revenues and expenditures of MTRCL during the operation period (including daily operation, maintenance and asset replacement).

(b) Internal Rate of Return for KTU Station and TME Project

The Economic Internal Rate of Return is generally used to measure the overall cost effectiveness of an infrastructure, including transport infrastructure projects to the whole society. The Economic Internal Rate of Return of a project refers to the rate of return of cumulative economic benefits of the project (i.e. the monetized passenger time savings due to the project, including the saving in travelling time due to alleviation of traffic congestion, savings in operating expenses of other public transport, and the savings arising from fewer traffic accidents) net of the construction and operating costs of the project.

Based on the above definition and assuming an operation period of 50 years, the Government assessed that the Economic Internal Rates of Return of the KTU Station project and TME project were 6.5% and 0.6% respectively.

(c) Capital Cost of TME Project

As indicated by the Government in the paper for the RSC and at the RSC meeting on 20 October 2023, after checking by the Government and its ICC in 2023, the latest capital cost of TME project was estimated to be $15.8 billion (in July 2023 prices). The estimated capital cost of TME project of about $11.4 billion provided by the Government in 2020 was calculated on the basis of December 2015 prices.

Apart from the adjustment in price levels, the increase in estimated capital cost was also due to the implementation of additional measures arising from the construction difficulties identified in the design process, the enhancement in the design of TME, and the adoption of verified cost estimates. These mainly include -

(i). installation of new electrical and mechanical systems and equipment supporting the railway operation is required in constructing the TME on the Tuen Ma Line. Following on-site checking of the existing electrical and mechanical systems during the detailed planning and design stage, MTRCL finalised the number of interface equipment required and the relevant technical requirements for connecting the new electrical and mechanical systems and equipment to the existing ones; and

(ii). In accordance with the updated station design standards in 2021, MTRCL enhanced the design and equipment of TME stations, including the addition of stabling sidings at A16 station for the new trains to be procured under TME project, the relocation of A16 station towards the riverside in order to commence the relevant construction at the earliest, the addition of innovative technological systems and technological security systems, the increase in number of station communications and surveillance system devices, and the provision of additional wireless network, etc. Besides, the design of Tuen Mun Swimming Pool was enhanced in response to the requests from stakeholders in the community, such as increasing number of seats of the spectator stands from 700 to 1,200 and the provision of additional equipment and facilities including escalator and lift, etc.

Similar to the arrangements for KTU Station project mentioned above, HyD had carefully reviewed the project estimates prepared by MTRCL, and engaged an ICC to conduct cost checking with reference to the actual expenditures and market trends of recent railway projects, and taking into account the construction costs as well as revenues and expenditures of MTRCL during the operation period (including daily operation, maintenance and asset replacement).

(d) <u>Arrangement for Reprovisioning Tuen Mun Swimming Pool</u>

TME will be constructed in the fully developed and mature community at Tuen Mun South. Therefore, it is inevitable to demolish and reprovision some existing community facilities in order to make room for the works, including the demolishing of the existing Tuen Mun Swimming Pool for the construction of A16 Station of TME.

While considering the implementation programme and project cost of the TME, the support and opinions of the community are also essential to the implementation of the project. Since the commencement of the detailed planning and design of the project in 2020, the Government and MTRCL have extensively communicated with and consulted the stakeholders in the district, including the Tuen Mun District Council, resident representatives and local groups, to listen to opinions and requests, one of which was the reprovisioning of the highly utilised Tuen Mun Swimming Pool prior to its demolition.

In terms of the implementation programme, the critical works of the TME project include the construction of A16 Station, the extension of viaduct and the main construction works of Tuen Mun South Station. The construction periods of these critical works are affected by various factors. In addition to the above-mentioned "reprovisioning-prior-to-demolition" arrangement for the Tuen Mun Swimming Pool, other factors include the need to construct the viaduct extension on Tuen Mun River during dry season to minimise the impact on Tuen Mun River and the very limited construction space for the Tuen Mun South Station at Wu King Road. Furthermore, MTRCL needs to implement phased temporary traffic management measures in an orderly manner at sections of roads near Wu King Road in order to carry out works including underground utilities diversion and demolition of the affected facilities, and to make room along the existing Wu King Road for the construction of Tuen Mun South Station foundation, station structure and E&M systems, etc. To minimise the impact,

MTRCL's construction arrangement would also need to address the needs of the local stakeholders, in particular the operational needs of the adjacent schools. After assessing various factors and construction arrangements that would affect the main construction works, both HyD and MTRCL considered that the difference in the completion dates of TME project would be insignificant regardless of a "reprovisioning-prior-to-demolition" arrangement or a "demolition-prior-to-reprovisioning" arrangement for the Tuen Mun Swimming Pool. Therefore, after thorough consideration of the implementation programme and the construction arrangement of the TME project, the project team opined that adopting the "reprovisioning-prior-to-demolition" arrangement for Tuen Mun Swimming Pool would minimise the impact to the local community and meanwhile would not affect the target commissioning of TME.

Regarding the project cost, as the works processes involved under a "demolition-prior-to-reprovisioning" arrangement and a "reprovisioning-prior-to-demolition" arrangement for the Tuen Mun Swimming Pool are similar, the change in project cost would be insignificant.

Yours sincerely,

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for Secretary for Transport and Logistics

c.c.:

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