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16 October 2012

Council Business Division  
Legislative Council Secretariat  
Legislative Council Complex  
1 Legislative Council Road  
Central, Hong Kong  
(Attn: Ms. Joanne MAK)

Fax No. : 2869 6794

Dear Ms. MAK,

**Legislative Council Panel on Transport  
Subcommittee on Matters Relating to Railways**

**Supplementary Information on Members' Enquiries  
at the Meeting on 22 May 2012**

At the meeting held on 22 May 2012 by the Subcommittee on Matters Relating to Railways under the Legislative Council Panel on Transport, Members enquired about the design of vertical railway alignment. The following supplementary information is provided for Members' perusal.

2. When designing the vertical railway alignment, the MTR Corporation Limited will adopt the valley design wherever possible, i.e. the vertical track profile between stations is designed in the form of a valley while station platforms are located in a higher position. This design can achieve energy conservation and reduce noise of running trains.

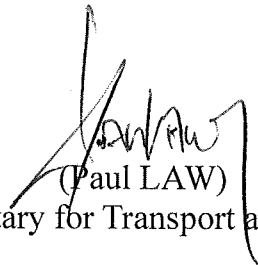
3. The motoring, acceleration, deceleration and braking of a train consume energy. The valley alignment design between stations allows the acceleration and deceleration of the train to be aided by its own weight as a natural physical phenomenon, thus reducing energy consumption of the engine. Such vertical alignment design is generally adopted worldwide. It is also specified in the design requirements for the Mainland and Singaporean railway systems. The

principle of how such alignment design helps reduce energy consumption is also explained in research papers on railway design.

4. Moreover, while motoring and braking of a train, the friction between the train wheels and the track creates noise. The valley alignment design facilitates the acceleration and deceleration of the train, thus reducing the friction between its wheels and the track during motoring and braking. This in turn reduces the noise of running trains.

5. For the section of Tsuen Wan Line between Tsuen Wan Station and Lai King Station as mentioned by Members, the valley alignment design has not been adopted because the rail section lies on undulating terrain and station platforms are not located at comparable levels. The design of vertical railway alignment must provide safe vertical clearance between the alignment and nearby structures (such as flyovers). It also has to interface with the level of stations' concourse and entrances.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Paul Law', is written over the typed name 'Paul LAW'. The signature is stylized and somewhat cursive.

for Secretary for Transport and Housing