

**LEGISLATIVE COUNCIL
PANEL ON DEVELOPMENT**

PWP Item No. 6188TB — Footbridge near MTR Kowloon Bay Station Exit B

**Follow-up Actions Arising from the Discussion
at the Meeting on 19 December 2018**

Supplementary information requested by the Panel on Development on 19 December 2018 is provided below:

(I) detailed breakdown of the estimated capital cost of the proposed works

The detailed breakdown of the estimated capital cost of the proposed works is as follows –

	\$ million (in MOD prices)
(a) Footbridge	137.9
(i) footbridge structure ¹ (including main bridge and elevated ramp)	73.8
(ii) foundation ²	64.1
(b) Modification of existing footbridge and elevated walkway ³	10.0

¹ This cost covers the construction of the proposed footbridge and elevated ramp, and all temporary measures during construction (including night work) to maintain the operation of the dual three-lane Kwun Tong Road. The temporary measures include construction of temporary support at the central median of Kwun Tong Road and elevated working platform across six traffic lanes of Kwun Tong Road prior to carrying out major construction works to facilitate lifting and erection of the proposed footbridge as well as on-site welding, etc. Besides, since the works are adjacent to the railway viaduct of MTR Kwun Tong Line, additional protection and preventive measures are required during construction, and appropriate project management and construction arrangements should be made in accordance with the safety control of the MTR. To ensure the normal operation of the MTR, the contractor can only carry out lifting works at night for no more than four hours.

² Given the site constraints, such as the need to maintain the operation of the dual three-lane Kwun Tong Road during construction, avoid affecting the existing piles of MTR railway viaduct, and comply with the settlement and vibration restrictions of MTR structures, minipiles have to be adopted for the foundation design of the proposed footbridge and elevated ramp. Since the bearing capacity of minipiles is lower than ordinary piles, the required quantity will be more, the foundation will be bigger, and the construction period will be longer. When carrying out piling works at the eastern end of the footbridge, the headroom restriction imposed by the existing footbridge no. KF(LNTKE) will lead to more splicing of the piles. The contractor is also required to use low vibration construction equipment and high standard temporary structures to cope with the stringent restrictions on settlement and vibration.

³ This cost includes modification of the existing footbridge no. KF(LNTKE) and the elevated walkway. The modification works include removal of the existing elevated platform at the eastern end of the existing footbridge

(c)	Road ⁴ and drainage works ⁵	31.9
(d)	Public lighting works	4.6
(e)	Landscaping ⁶ , utilities works, etc.	11.7
(f)	Environmental mitigation measures	2.3
(g)	Consultants' fee for	2.9
	(i) Contract administration	2.1
	(ii) Management of resident site staff (RSS)	0.8
(h)	Remuneration of RSS	37.1
(i)	Contingencies	23.8
Total		262.2 ⁷

(II) the unit cost per square metre of footbridges constructed by the Government in general, vis-à-vis that of the proposed footbridge

The proposed footbridge works have the following characteristics and constraints:

- apart from the main bridge, the works include construction of an elevated ramp;
- multi-stage temporary traffic arrangements are required to maintain smooth traffic on a busy dual three-lane trunk road (Kwun Tong Road);
- the footbridge adopts structural steel design to speed up the construction;
- no adjoining works area for storage, processing and assembling of steel and prefabricated units;
- construction works adjoining the MTR railway viaduct and MTR station are

and provision of a temporary elevated walkway, removal of existing parapet walls, modification of roof, and strengthening existing structures, etc.

⁴ The road works include modification of the Kwun Tong Road alignment of about 200 metres long, temporary traffic arrangements and demolition of the central median, road excavation, repaving and reconstruction of the central median. Kwun Tong Road is a busy trunk road and traffic on three lanes both northbound and southbound has to be maintained during the daytime. The contractor has to carry out multi-stage temporary traffic arrangements on Kwun Tong Road to narrow the central median for realigning the traffic lanes in order to free up adequate space for carrying out the works.

⁵ Associated drainage works include relocation of the drainage system due to realignment of about 200 metres of Kwun Tong Road.

⁶ Landscaping works include removal and transplanting of trees, and provision of nursery for maintenance and arboriculture treatment of transplanted trees, and planting of new trees, etc.

⁷ Compared with the information stated in the paper considered by the Panel on Development on 19 December 2019, the estimated cost of the project has been adjusted from \$268.4 million to \$262.2 million. The adjustment was brought about by resolving an interfacing issue between the proposed footbridge and the MTR Kowloon Bay Station, hence advancing some of the works and the related payment.

- subject to stringent restrictions on safety, vibration and settlement; and
- there are headroom restrictions on piling and lifting works imposed by the MTR railway viaduct.

Since each footbridge project has its own characteristics and construction conditions, it is actually difficult to make direct comparison. For the proposed footbridge, the estimated construction cost per square metre is –

	Estimated Cost \$ million (in MOD prices)
Footbridge (including main deck, elevated ramp and foundation)	137.9
Average Cost* (per square metre)	0.32

* Gross floor area of about 430 square metres, including 370 square metres of main bridge, elevated platform and staircase, and 60 square metres of elevated ramp.

The estimated cost of the footbridge (including main bridge, elevated ramp and foundation) is \$137.9 million after excluding the costs of modification of existing footbridge and elevated walkway, other ancillary works, consultancy fees, remuneration of RSS and contingencies. Based on a gross floor area of about 430 square metres, the estimated average cost of the proposed footbridge is approximately \$320,000 per square metre. We have made reference to the basic unit cost of recent government footbridge projects in estimating the cost of the project. In view of the characteristics and complexity of the proposed footbridge, we consider the abovementioned cost per square metre a reasonable estimate.

(III) whether the Administration had considered alternative alignments and methods of construction of the proposed footbridge; and the details and estimated capital costs of such alternatives (including the economic costs caused by traffic delay during the construction stage)

The Transport Department has received requests from Legislative Council Members and Kwun Tong District Council members for the construction of a ramp as barrier-free access. Members of the public have also pointed out the great inconvenience on daily life due to frequent maintenance of stairlifts and platform lifts. We therefore take the opportunity to provide a ramp as barrier-free access in the proposed project. The Traffic and Transport Committee of the Kwun Tong District Council and the Working Group on Access to Public Transport for People with Disabilities set up by the Transport Department both supported the proposal.

We have considered widening the existing footbridge no. KF(LNTKE) at the preliminary design stage. However, since the parapet walls on both sides of the

existing footbridge are structural elements, it is necessary to dismantle and reconstruct the entire footbridge if it is to be widened. This option is not feasible as it will require longer construction time and cause serious impact on pedestrians and road traffic.

We have considered the following three options of alignment of the proposed footbridge and barrier-free ramp:

Option 1: New footbridge adjoining existing footbridge (**Plan 1**)

The entrance at the eastern end of this alignment would be obstructed by the lift under construction, causing inconvenience to those using the footbridge and lift. The entrance at the western end would be at a distance from the MTR station exit and could not effectively divert pedestrian flow. Moreover, with this alignment being adjoining the existing footbridge, there would not be adequate space for repair and maintenance. The staircase of the existing footbridge would also need to be demolished and reprovisioned at a farther location, which would not be conducive to smooth flow of pedestrians. Furthermore, with demolition of the existing staircase, a temporary staircase should be provided which would increase the construction cost and period. Therefore, this option was not adopted.

Option 2: New footbridge between existing footbridge and MTR Kowloon Bay Station Exit B (**Plan 2**)

This alignment could not provide sufficient space for barrier-free access. Platform lift and stairlift were generally not accepted by the public, and the ramp provided could not comply with the minimum safety requirement of 1:12 gradient for barrier-free access. Therefore, this option was not adopted.

Option 3: Current proposed footbridge alignment

In view of the abovementioned site constraints and after detailed study, we concluded that the current proposed footbridge alignment would be the only feasible option. The proposed alignment would not only alleviate the crowdedness at the existing footbridge and elevated walkway near MTR Kowloon Bay Station Exit B, but also provide reliable and convenient barrier-free access.

Since Options 1 and 2 are not feasible, we have not prepared cost estimates for these two options.

As regards the method of construction, in view of the complex site constraints, we carefully considered different methods at the time of design and proposed the most appropriate and effective construction method and arrangements. In order to maintain the three-lane traffic on Kwun Tong Road both northbound and southbound, the central median has to be narrowed to provide space for realigning the traffic lanes during construction. Besides, multi-stage temporary traffic arrangements have to be carried

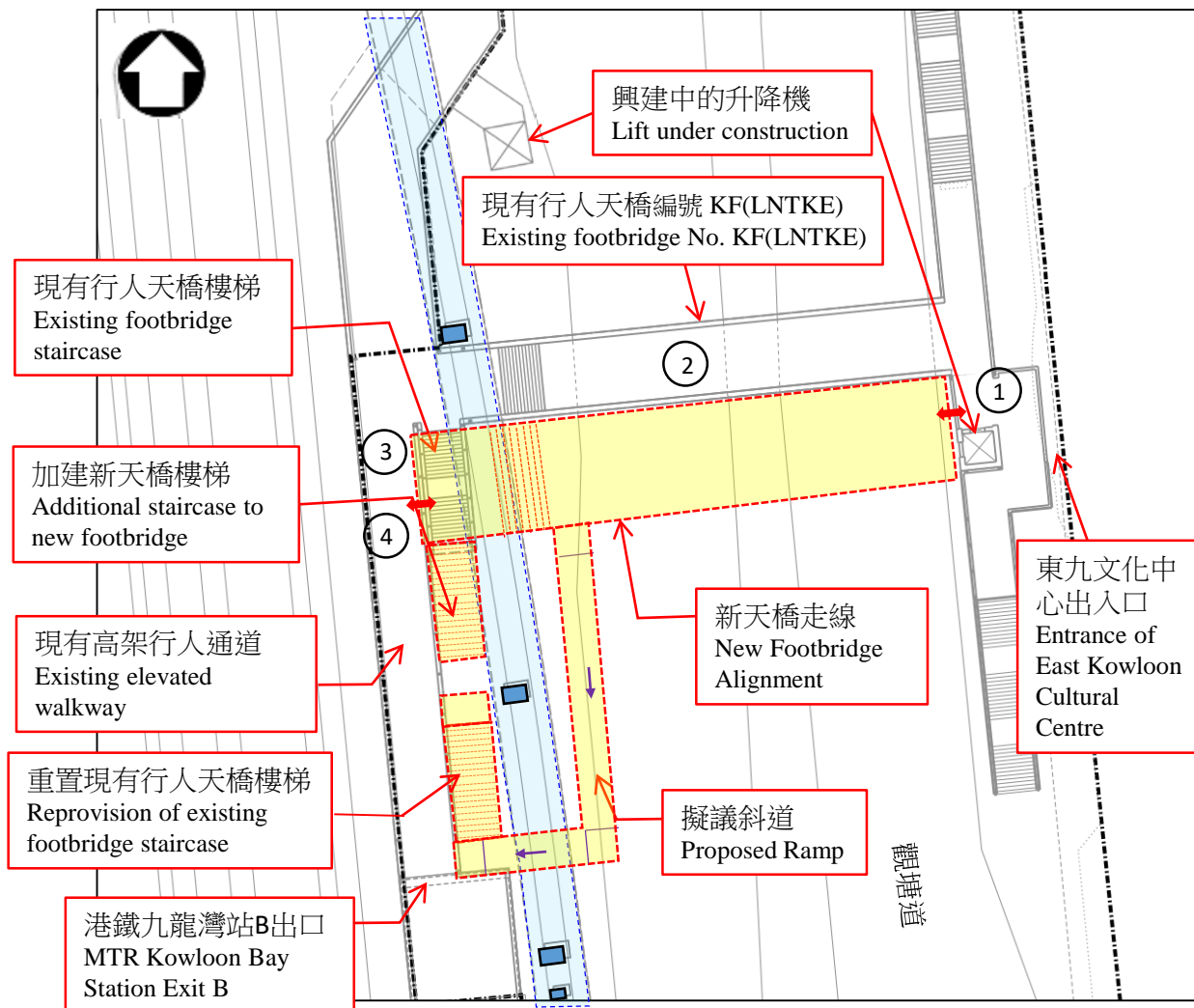
out to free up space at both ends of the footbridge for carrying out the works. The proposed footbridge adopts structural steel design, which not only reduces the weight of the footbridge but also allows the contractor to use prefabricated units to speed up the construction. To avoid affecting the existing piles of the MTR railway viaduct and to comply with the settlement and vibration restrictions of adjacent MTR structures, minipiles are adopted for the foundation design of the proposed footbridge and ramp, and the contractor is also required to adopt low vibration construction equipment and high standard temporary structures for carrying out the works.

Development Bureau
January 2019

新天橋走線方案一

New Footbridge Alignment Option 1

圖一
Plan 1



不採納的原因：

Reasons for not adopting:

1. 新天橋東面出入口被興建中的升降機阻擋，會對使用天橋及升降機人士造成不便。
The entrance at the eastern end of the new footbridge would be obstructed by the lift under construction, causing inconvenience to those using the footbridge and lift.
2. 新天橋太接近現有行人天橋，維修及保養空間不足。
With the new footbridge being adjoining the existing footbridge, there would not be adequate space for repair and maintenance.
3. 新天橋西面出口跟現有高架行人通道連接，需要拆除現有天橋樓梯，重置於較遠位置，不利行人暢通流動。
The entrance at the western end of the new footbridge is connected to the existing elevated walkway. The staircase of the existing footbridge would need to be demolished and reprovisioned at a farther location, which would not be conducive to smooth flow of the pedestrians.
4. 新天橋西面出口遠離港鐵站出口，不能有效疏導人流。
The entrance at the western end of the new footbridge is at a distance from the MTR station exit and cannot effectively divert pedestrian flow.

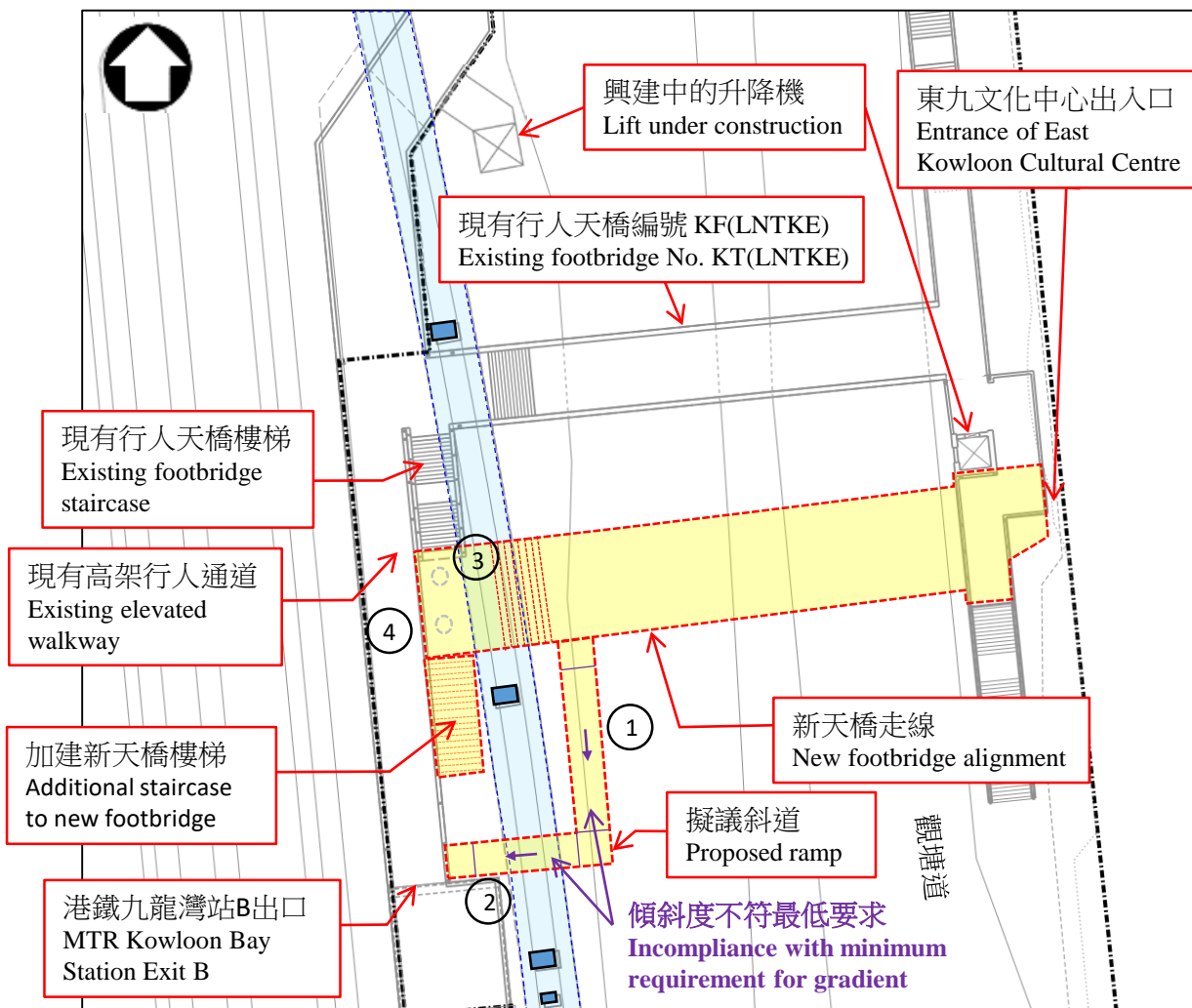
■ 港鐵鐵路高架橋柱墩
Column of MTR Railway Viaduct

港鐵鐵路高架橋
MTR Railway Viaduct

新天橋走線方案二

New Footbridge Alignment Option 2

圖二
Plan 2



不採納的原因：

Reasons for not adopting:

1. 新天橋走線沒有足夠空間容納無障礙設施，斜道不符合無障礙通道傾斜度1:12的最低安全要求。
The alignment of the new footbridge cannot provide sufficient space for barrier-free access. The ramp cannot comply with the minimum safety requirement of 1:12 gradient for barrier-free access.
2. 港鐵鐵路高架橋對擬議斜道走線構成高度限制。
Headroom restriction imposed by MTR railway viaduct on the proposed ramp alignment.
3. 新天橋西面柱墩會影響現有天橋樓梯出口。
The columns at western end of the new footbridge would affect the entrance of existing footbridge staircase.
4. 新天橋西面出口遠離港鐵站出口，不能有效疏導人流。
The entrance at the western end of the new footbridge is at a distance from MTR station exit and could not effectively divert pedestrian flow.