

Translation

For Information

September 2017

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

**Progress and Financial Situation of the
Construction of the Hong Kong Section of the
Guangzhou-Shenzhen-Hong Kong Express Rail Link**

(Quarterly Report for the Period ending 30 June 2017)

INTRODUCTION

This paper aims to brief Members on the major works progress and financial situation of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”) and the relevant monitoring work carried out by the Highways Department (“HyD”) for the period ending 30 June 2017.

BACKGROUND

2. At the meeting of the Subcommittee on Matters Relating to Railways (“RSC”) under the Legislative Council (“LegCo”) Panel on Transport in April 2010, Members agreed that reports on progress update and financial situation of the construction of the Hong Kong section of the XRL should be submitted at six-month intervals. To enhance the reporting to the LegCo on the progress update and financial situation of the construction of the Hong Kong section of the XRL, such reports have been submitted to the RSC at quarterly intervals since the fourth quarter of 2014.

— 3. This paper, which is appended with the progress report (**Annex**) of the MTR Corporation Limited (“MTRCL”), reports on the major works progress,

indicators and financial situation for the second quarter of 2017 (i.e. from 1 April to 30 June 2017).

PROGRESS UPDATE OF THE PROJECT

4. The HyD, with the assistance of its Monitoring and Verification (“M&V”) Consultant, continued to monitor systematically the implementation of the works on the Hong Kong section of the XRL by the MTRCL under its monitoring mechanism and took appropriate follow-up actions. Such mechanism includes meetings at various levels (such as meetings of the Project Supervision Committee chaired by the Director of Highways, Project Coordination Meetings chaired by an Assistant Director of HyD, Contract Review Meetings (“CRMs”) chaired by HyD’s Chief Engineer) and regular site inspections.

5. Since the third quarter in 2015, the Government has been monitoring the progress of the remaining works of the XRL project against the revised commissioning target of the XRL in the third quarter of 2018.

6. As stated in the MTRCL’s progress report, the overall progress of the Hong Kong section of the XRL was 94.3% as at the end of June 2017, which was ahead of the planned progress of 88.9% based on the target of commissioning of the XRL in the third quarter of 2018. According to assessment by the HyD of the Programme to Complete submitted by the MTRCL against the commissioning target of the third quarter of 2018, the most critical parts of the entire XRL project are currently the construction of West Kowloon Station (“WKS”), including the External Wall System (“EWS”) at Station Entrance Building (“SEB”), the works for port area facilities, and the works for electrical and mechanical (“E&M”) systems currently being carried out in the WKS, especially those related to fire services equipment, the progress of which requires continual and close monitoring. In addition, to cope with the commencement of the testing and commissioning (“T&C”) in the second half of 2017 and the trial operation of the XRL, the associated preparation works have to be progressed as planned, including the integrated T&C of XRL for

connection to the high speed rail network of the Mainland, and cross-boundary dynamic testing for XRL trains. We will focus the monitoring work on the progress of these works. The progress of the relevant works is set out below.

(a) Construction of West Kowloon Station

7. According to the progress report by MTRCL, the most critical part of works is the installation of EWS at SEB. The fabrication of glazing panels and aluminum panels in fabrication yards was substantially completed. The cumulative progress of installation of glazing system, internal and external aluminium panel system was 89%, 62% and 48.9% respectively. The installation of glazing system progressed as planned while the progress of internal and external aluminium panel system installation was behind schedule, but had not affected the overall progress of works at the moment. MTRCL has arranged with the contractor to increase labour resources to expedite the installation progress. Furthermore, MTRCL has adjusted the sequence of the aluminum panel system installation works so as to cope with building services (“BS”) works and fire services inspections. The HyD will continue to closely monitor the progress of the works in conjunction with its M&V Consultant.

8. The concrete structural works on various floor levels of the WKS was nearing completion. Its cumulative progress as at end June 2017 was 98.7%. The MTRCL continues to monitor the contractor’s construction arrangement so as to complete the remaining concrete structural works as soon as possible, and to enable the subsequent Architectural Builder’s Works and Finishes (“ABWF”), BS works and E&M works to be carried out smoothly. In addition, the construction of concrete partition walls of Mainland port area at the WKS was substantially completed. The finishes works, tile flooring and screeding works in Mainland departure and arrival halls, and back of house area are being carried out as planned. Immigration counters are being installed.

9. The construction of WKS involves numerous contractors of different types and trades working at the same location, including BS works, ABWF works, E&M works, etc. A large number of workers and machinery are

involved in the process. As such, proper management and coordination are required so that different types of works can be carried out in an orderly and smooth manner. HyD will continue monitor the work of MTRCL in this aspect.

(b) Construction of Mainland Section of Cross-boundary Tunnels

10. The T&C and trial operation of the XRL will proceed through the cross-boundary tunnels connecting to the high speed rail network of the Mainland. The construction of Mainland section of cross-boundary tunnels was substantially completed. As at end June 2017, the signalling system and the overhead lines between the Mainland section and the Hong Kong boundary were ready for T&C and trial operation.

(c) Electrical and Mechanical Systems

11. The works on E&M systems and BS systems are progressing at the WKS (including Mainland port area), tunnel sections, Shek Kong Stabling Sidings (“SSS”) and various ventilation buildings. Apart from the installation works for fire services and drainage equipment at the WKS and the associated approach tunnel (South) which remained critical, other E&M systems are at the final installation and testing stage. The progress of the relevant critical works and the associated testing and acceptance works is detailed below.

12. At the WKS, the contractors for various BS systems continued their works in the south and north ends of the WKS on each level for the installation and testing of fire services and other E&M equipment. The HyD noticed that there is still risk of slippage for the installation of fire services equipment. In addition, there are still substantial volume of drawings required to be submitted to Fire Services Department for approval. This might impact directly on the subsequent inspections of such equipment. The HyD has urged the MTRCL on many occasions to improve the manpower and supervision in order to meet the construction and submission requirements. The Fire Services Department has also arranged sufficient resources in order that the fire service inspection can

proceed smoothly. The HyD will continue strengthening the coordination and monitoring works.

13. As regards tunnels, the installation of trackworks and overhead lines in the southbound tunnel from the cross-boundary tunnel to Tracks 4 to 7 at WKS were completed. Regarding the tunnel of Mainland section from Shenzhen Futian to the cross-boundary tunnel, the trackworks and overhead lines are ready. The installation of trackworks and overhead lines at remaining Tracks 8 to 13 of WKS will be completed by the third quarter of 2017.

14. Preparation work for Phase III inspection at SSS (i.e. the final phase) is in progress and the inspection is targeted for completion by end of 2017.

15. Amongst the eight ventilation buildings, the Mongkok West, Nam Cheong, Kwai Chung, Shing Mun, Pat Heung and Mai Po Ventilation Buildings had completed its fire services inspections. The fire services inspections of the tunnel section from Mongkok West to Pat Heung had also been completed. The cumulative progress of BS installation at the ventilation buildings was 98% and the fire services inspections of the remaining ventilation buildings and tunnel sections will be arranged subsequently, and are targeted for completion within 2017.

16. Regarding the control system, the network of Main Control System had been connected through all ventilation buildings, the SSS, the Operations Control Centre and the centralized E&M equipment room at the WKS. Testing of remote access and control functions of the E&M systems and installation of the associated control equipment at the Station Control Room at the WKS are in progress as planned.

17. As a whole, the installation of E&M systems has proceeded as scheduled in general so as to pave way for the T&C and trial operations of railway system at the next stage.

(d) XRL Trains

18. Following the delivery of the first and second XRL train sets to Hong Kong in end 2016 and early 2017 respectively, the third to ninth sets were delivered to Hong Kong from Qingdao through the high speed rail network of the Mainland and the cross-boundary tunnel in batches in July and August 2017. The testing of trains has commenced accordingly.

(e) Testing and Commissioning and Trial Operations

19. To facilitate the T&C to commence in the second half of 2017 and the subsequent trial operation of the XRL, MTRCL will connect the signaling and communication systems of the Operation Control Centres in Hong Kong with the Guangzhou Operation Control Centre. The inspections of trackworks and overhead lines of the Hong Kong Section of the XRL are in progress for raising the train speed capacity gradually to maximum 200 kph within the Hong Kong section. Relevant Government departments will be coordinated for the inspection of facilities.

20. The HyD would continue to coordinate with other Government departments and Mainland authorities to facilitate the timely completion of the T&C as well as the trial operations of the whole railway system.

(f) Local road-based Public Transport Arrangements

21. The Transport Department (“TD”) is formulating the public transport arrangements to cater for the future passenger demand for access to and from the WKS. On railway services, the WKS is linked to the nearby Kowloon Station of the MTRCL’s Tung Chung Line, and Austin Station of the West Rail Line by several pedestrian links, including two covered pedestrian footbridges and one pedestrian subway connecting the WKS and Austin Station of the MTRCL West Rail Line, as well as three covered pedestrian footbridges and one pedestrian subway connecting the WKS with the Kowloon Station. It is anticipated that large number of passengers will make use of MTRCL services to interchange

with WKS.

22. On road-based public transport, with the existence of a well-connected public transport network in the vicinity of WKS, the transport arrangements to be formulated aims to enhance the existing services and suitably introduce express bus routes. Specifically, the preliminary proposals conceived by the TD include introducing three new franchised bus routes plying between WKS and Admiralty/Central, East Kowloon and New Territories East respectively, as well as re-routing the franchised bus routes and GMB routes currently serving the areas in the vicinity of WKS, including having the terminating point of the franchised bus routes at Jordan Temporary Bus Terminus (To Wah Road) (which was temporarily set up in connection with the construction of WKS)) relocated to the public transport interchanges at the new WKS or the existing Kowloon Station. In addition, the WKS will be provided with a taxi stand and a drop-off area for urban taxis, as well as loading and unloading bays for non-franchised buses.

23. TD will follow the established practice and consult the Traffic and Transport Committees of the District Councils concerned on the above public transport arrangements before finalising the details. TD will then inform the public of the detailed arrangements, and will maintain close liaison with the District Councils concerned when implementing the arrangements.

**Transport and Housing Bureau
Highways Department
Transport Department
September 2017**

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Subcommittee on Matters Relating to Railways**

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Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link**

(Report for the period between 1 April and 30 June 2017)

INTRODUCTION

This paper presents the construction progress of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (“XRL”) project up to 30 June 2017.

BACKGROUND

2. The progress reported below is based on the target of completing the XRL project to allow for passenger service in the third quarter of 2018 (“2018 Schedule for Completion”). This paper outlines major works progress, key performance indicators (“KPIs”), as well as financial status for the period between 1 April and 30 June 2017.

MAJOR WORKS PROGRESS OF THE XRL PROJECT

(I) Overall Progress of the Construction Works

3. As at 30 June 2017, the overall progress of the XRL project was 94.3%¹ against the planned progress of 88.9% according to the 2018 Schedule for Completion. The Corporation is closely monitoring the progress of the remaining works, including the construction of the West Kowloon Station (“the Station”), electrical & mechanical (“E&M”) works and the testing and commissioning (“T&C”) works, so as to achieve the target completion in the third quarter of 2018.

(II) XRL Trains

4. Subsequent to the first two XRL trains arrived in Hong Kong by sea, the remaining seven sets of XRL train will be delivered to Hong Kong by land through the high-speed rail network from Qingdao. This will mark the full connectivity between the Hong Kong Section and the Mainland Section of the XRL, meaning that Hong Kong will be connected with the 20,000-kilometre National High-speed Rail Network.

5. Before arriving Hong Kong, these seven sets of XRL train which will be delivered by rail should undergo a number of tests, including testing of the traction and braking system, compatibility testing of the signaling system and communications system, etc., along the Guangzhou-Shenzhen Section. *[Latest update: The remaining seven sets of XRL train were gradually delivered to Hong Kong by rail in July and August 2017, which means that all nine sets of high-speed train for the XRL project are now in Hong Kong.]*

¹ Sum of all weighted percentages completed of all major contracts



XRL train carries out a number of tests along the Guangzhou-Shenzhen Section of the XRL

(III) Major Progress of the Construction of West Kowloon Station

6. 98.7% of the concrete structure of the Station has been cast compared to the planned target of 96.9%.

7. The construction of the Station Entrance Building (“SEB”), which is on the critical path, is progressing as scheduled. The fabrication of glazing panels for the External Wall System (“EWS”) of the SEB has been completed. Apart from the EWS’s glazing panels, 95.9% of the aluminum cladding panels have been fabricated and the production rate is being closely monitored. Overall progress for the installation of glazing at SEB was 89% complete, while the internal and external aluminum cladding were 62% and 48.9% complete respectively. The construction team is now working towards the upcoming milestone, which is to achieve weather-tightness for the main roof in the third quarter of 2017. *[Latest update: Weather-tightness has been achieved in July 2017.]*



Installation of lift at the roof top at the eastern side of the Station Entrance Building



Installation of glazing panels at the western side of the Station Entrance Building



Installation of cladding panels inside the West Kowloon Station

8. The Architectural Builder's Works and Finishes ("ABWF") and building services works are continuing at the Customs, Immigration and Quarantine ("CIQ") area of both the Mainland and Hong Kong sides, as well as all levels inside the Station.

9. The structural works at the south end of the West Kowloon Station Bus Terminus ("Bus Terminus") adjacent to Jordan Road has been completed. The remaining structural works at the north end of the Bus Terminus and associated roadwork in the area which has been made available after the diversion of Lin Cheung Road implemented in April 2017, are in full swing with ground beams construction being carried out on site.



The construction of the West Kowloon Station Bus Terminus near Jordan Road is progressing

10. The construction of the Lin Cheung Road / Austin Road West Underpass is now underway and is planned to be opened in phases from the third quarter of 2017.

(IV) E&M and Signaling Systems

11. Works under various E&M contracts are in progress with the overall completion rate of 87.5% as at the end of June 2017.

12. Some 70.3km of the 25kV overhead line (“OHL”) wire has been installed, which is around 96.6% complete. Following the energization of OHL in Hong Kong Section’s main tunnels and along the first four tracks at the Station, the OHL of the Mainland Section between Futian to Hong Kong/Shenzhen Boundary (“the Boundary”) will be energized in early July 2017 to facilitate the delivery of XRL train by rail. The OHL along the remaining six tracks at the Station will be energized in the third quarter of 2017. *[Latest update: Energization of all the remaining OHL has been achieved in August 2017.]*

13. Verification by the Comprehensive Inspection Train (“CIT”) in respect of the performance of tracks, OHL, signaling and communications systems, etc. will be carried out between Guangzhou-Shenzhen Section and the Hong Kong Section in the third quarter of 2017. Subsequently, the dynamic testing of the XRL trains could be carried out at full speed in the Hong Kong Section, as well as across the boundary. *[Latest update: CIT inspection has been completed in July 2017. The full-speed dynamic testing of the XRL trains has been carrying out in the Hong Kong Section and cross-boundary.]*



The Comprehensive Inspection Train inspects the railway infrastructure and systems

14. Signaling static interface testing between the Mainland and Hong Kong systems has been completed. The signaling and communications systems of the Operations Control Centre (“OCC”) at Shek Kong Stabling Sidings and the OCC at Guangzhou will be inter-connected in early July 2017. Both OCCs can then jointly monitor trains operating along the entire Guangzhou-Shenzhen-Hong Kong Section in real time. *[Latest update: Both OCCs were inter-connected on 5 July 2017, which signified the readiness for the commencement of integrated T&C with the Mainland.]*

15. Installation of building services equipment in the Ventilation Buildings (“VBs”) was 98% complete, which was ahead of the planned progress of 90.8%. The fire services inspection by the Fire Services Department (“FSD”) is being carried out at VBs and is targeted for completion in the third quarter of 2017. All 104 tunnel ventilation fans in VBs, the Station and West Kowloon Plant Building have been installed and 94 of them are performing start-up tests, while control mode tests and air flow measurement continue.

16. At the Station, E&M contractors have been given access to an area of around 474,700m², i.e. about 99.2% of the total construction floor area, for E&M installation under Contracts 810A, 810B and 811B. Building services of the Station were 80.7% complete compared to the planned target of 60.9%.

17. There are a total of 148 lifts to be installed in various locations including the Station and VBs etc., access to 138 lift shafts has been given for installation, in which 26 lifts have obtained Use Permits. At the Station, installation of 115 lifts has commenced, among which 77 lifts have already gone through the initial Stage 1 testing with the temporary power supply. Meanwhile, installation of 69 out of the total of 71 escalators in the Station is underway, with 45 of them already installed and completed initial testing. Installation and testing for the rest of the lifts and escalators is targeted for completion in the first quarter of 2018.

18. The installation of the Environmental Control System (“ECS”) at the Station South is substantially complete and the T&C is progressing well.

Meanwhile, the progress of the installation of ECS at the Station North continues to be steady and major equipment including fans, air handling units and Motor Control Centre (“MCC”), etc. has been delivered to site and is being installed. Wiring work for ECS equipment has also commenced at the Station North.

19. The power supply system installation is progressing steadily. All 14 Main LV Switchboards have been energized. Cable laying work at the Station South is substantially complete, while cable laying work at the Station North is in full swing.

20. Installation of fire services equipment at the Station South has been substantially completed with the sump pumps being tested and energized. Fire services equipment installation works at the Station North still continue.

(V) Construction Challenges

(a) West Kowloon Station

21. The timely installation of the Station Entrance Building internal and external cladding panels is one of the key focuses. The Corporation continues to closely monitor the installation progress.

22. While the FSD inspection in the Station South (Contract 810B) is progressing, the Corporation is now focusing on preparing the Station Approach Tunnel South (Contract 811B) area for FSD inspection in the third quarter of 2017.

(b) Labour Issues

23. As at the end of June 2017, a daily average of about 7,182 construction workers and technical / professional staff members were employed for the works during the reporting period. The demand for E&M workers is still high as the project moves towards installation and finishing works.

(VI) Preparation and Interface Works

24. Construction of the MCIQ areas remains on the critical path although the overall progress was in line with the programme. The Corporation will continue to liaise closely with the Mainland authorities through the Government on their equipment and system installation.

(VII) Updated Financial Situation of the XRL project

25. As at 30 June 2017, the cumulative expenditure for the awarded contracts was \$64.5 billion.

26. The Corporation will continue to closely monitor the costs and progress of the XRL project. Details of the financial situation of the project are shown in Annex 2.

MTR Corporation Limited
September 2017

Annex 1 – KPIs of Major Works Progress

Summary of the Construction Progress of the XRL Project

Works Commencement Date	26 January 2010
Target Completion Date	Q3 2018
Works Progress	Overall completion progress: 94.3% [as at end June 2017]

Progress of Key Civil Works Contracts

Cumulative progress of contracts for the Station construction:

Contract No.	Concrete structural works	Station excavation works
	End June 2017	End June 2017
810A	98.2% (96.0%)	100% (99.5%)
810B	100% (99.4%)	100% (100%)

Percentage in brackets is the planned progress of the Q3 2018 Schedule for Completion

Cumulative progress of contracts for tunnel construction:

Contract No.	Actual progress	Planned progress*
	End June 2017	End June 2017
811A	100%	100%
811B	92.5%	89.5%
820	100%	100%
821	100%	100%
822	100%	99.9%
823A	100%	100%
823B	100%	99.9%
824	100%	98.9%
825	100%	99.7%
826	100%	100%

Cumulative progress of E&M works:

E&M Works Progress	Actual progress	Planned progress*
	End June 2017	End June 2017
Station Building Services	80.7%	60.9%
Track Laid	99.9%	97.0%
Overall installation	83.3%	61.8%
Overall E&M	87.5%	69.8%

** Percentage is the planned progress of the Q3 2018 Schedule for Completion*

Annex 2 – Financial Expenditure

Expenditure report ending 30 June 2017

Table 1 – Situation of Expenditure

	Awarded contract sum for the contracts (\$ million)	Cumulative expenditure (\$ million)
Railway Tunnels	22,521.0	30,306.9
Station	14,620.5	25,283.5
E&M Works	8,424.4	8,939.1
Total	45,565.9	64,529.5

Table 2 – Situation of substantiated claims

	Claims resolved			Claims unresolved		
	Number	Amount claimed originally* (\$ million)	Amount awarded# (\$ million)	Number	Amount claimed* (\$ million)	Interim award (\$ million)
Railway Tunnels	122	3,323	1,738	433	9,298	2,515
Station	129	10,078	6,291	262	1,674	729
E&M Works	7	841	586	100	4,600	906
Total	258	14,242	8,615	795	15,572	4,150

*Amount stated in the contractor's detailed claim report.

The amount awarded means the payment for claims resolved.

As at 30 June 2017, the Corporation had received 1,053 substantiated claims and the amount claimed in total was approximately \$29.8 billion, representing 65.4% of the awarded contract sum for the contracts. The Corporation has been discussing the details of the claims with the contractors concerned, and would thoroughly assess the amount claimed. The Corporation would process each claim in a prudent manner, and the contractors would have to provide sufficient justifications and information. As at 30 June 2017, 258 cases were resolved and about \$8,615 million was awarded, representing about 18.9% of the awarded contract sum for the contracts. Subject to the needs of individual works and progress of the relevant assessment and discussion, interim awards amounting to about \$4,150 million have been made for some cases.