

Translation

For Information

November 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 September 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 September 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 third quarter of 2017 (i.e. from 1 July to 30 September 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 96.9% as at the end of September 2017, which was ahead of the planned progress of 92.3% 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 works for port area facilities, and those for Architectural Builder’s Works and Finishes (“ABWF”), building services (“BS”) and electrical and mechanical (“E&M”) systems, especially the works related to fire services equipment, the progress of which is the most critical and requires continual and close coordination and monitoring. In addition, the testing and commissioning (“T&C”) of the whole railway system, including the integrated T&C for connection to the high speed rail network of the Mainland, commenced in July 2017. The tasks concerned require close

liaison and coordination with the Mainland authorities and railway operators. We will focus on the monitoring work and maintain close liaison with the Mainland authorities. The progress of the relevant works is set out below.

(a) Construction of West Kowloon Station

7. The works on the External Wall System (“EWS”) at Station Entrance Building (“SEB”), which was assessed as one of the critical activities in the last quarterly progress report, has proceeded to the final installation stage. The cumulative progress of installation of glazing system, internal and external aluminium panel system was 96.4%, 94.8% and 85.4% respectively. MTRCL anticipated that the installation of the EWS would be substantially completed by end 2017. The HyD will continue to closely monitor the progress of the remaining works in conjunction with its M&V Consultant.

8. The works for ABWF, E&M and BS systems on various floor levels of the WKS are now in full swing. The associated works, including finishes works, tile flooring and screeding works and installation of immigration counters, in the respective clearance and back of house areas the of Hong Kong and Mainland port areas are proceeding as scheduled.

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. The HyD will closely monitor MTRCL’s works in conjunction with its M&V Consultant and coordinate with relevant departments for the subsequent installation of equipment.

(b) Electrical and Mechanical Systems

10. The works on E&M systems and BS systems at the tunnel sections, Shek Kong Stabling Sidings (“SSS”) and various ventilation buildings has been

substantially completed. At the WKS (including the Mainland port area), the HyD continued to monitor the installation works on fire services and drainage equipment, and noticed that there was still risk of slippage for installation of fire services equipment, which might have impact on the subsequent fire services inspections. The HyD has urged the MTRCL on many occasions to improve manpower and supervision in order to meet the construction and submission requirements. Fire services inspection has commenced in the south and north ends of the WKS on each level and station platform. Besides, the Fire Services Department has arranged sufficient manpower to meet the needs of fire services inspection. The installation of other E&M systems has been substantially completed and the systems are now under testing. The HyD will continue strengthening the coordination and monitoring works.

11. Regarding the tunnel of Mainland section, the trackworks and overhead lines from Shenzhen Futian Station to the cross-boundary tunnel were ready in mid-July 2017. The installation of trackworks and overhead lines in the cross-boundary tunnel, mainline tunnels and the ten tracks at WKS that would be operational upon commissioning were also completed and powered on in August 2017.

12. 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.

13. Amongst the eight ventilation buildings and ancillary buildings, fire services inspection at Tai Kong Po and West Kowloon Plant Buildings, as well as the Mongkok West, Nam Cheong, Kwai Chung, Shing Mun, Pat Heung, Ngau Tam Mei and Mai Po Ventilation Buildings were completed. The fire services inspections of the tunnel section from Mongkok West Ventilation Building to Shenzhen-Hong Kong Boundary was also completed. The BS installation at the ventilation buildings was substantially completed and is undergoing fire services inspection.

14. Regarding the control system, the network of Main Control System has 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 have been completed.

15. As a whole, the works of E&M systems have been carried out as scheduled in general so as to pave way for the T&C and trial operations of railway system.

(c) XRL Trains

16. All nine sets of XRL train have been delivered to Hong Kong and various tests on the trains have been conducted in the Hong Kong section of XRL. The trains are now undergoing reliability runs which are expected to be completed by the end of 2017 as scheduled.

(d) Integrated Testing and Commissioning

17. The cross-boundary integrated T&C of the XRL commenced in the third quarter of 2017, the scope of which includes on-board and trackside signaling systems, trains, headway demonstration tests and end-to-end train test for the whole line. The progress is in line with schedule and all tests are anticipated to be completed in the first quarter of 2018. Relevant Government departments, including the Electrical and Mechanical Services Department, the Fire Services Department, the Buildings Department and the Water Supplies Department, will also be involved in the inspection of facilities such as E&M, fire services, buildings and water supply quality etc. 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.

Transport and Housing Bureau

Highways Department

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(Report for the period between 1 July and 30 September 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 September 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 July and 30 September 2017.

MAJOR WORKS PROGRESS OF THE XRL PROJECT

(I) Overall Progress of the Construction Works

3. As at 30 September 2017, the overall progress of the XRL project was 96.9%¹ complete against the planned progress of 92.3% according to the 2018 Schedule for Completion. The Corporation is closely monitoring the progress of the remaining works, including the construction of 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) Major Progress of the Construction of West Kowloon Station

4. The concrete structure of the Station and internal wall construction have been substantially completed, which enabled the follow-on Architectural Builders’ Works and Finishes (“ABWF”), building services and E&M works to be carried out in a timely manner.

5. The construction of the Station Entrance Building (“SEB”), which is on the critical path, is generally progressing as scheduled. The fabrication of all aluminum cladding panels has been completed. Installation of glazing at SEB has been substantially completed, and weather-tightness for the main roof has been achieved in July 2017. Internal and external aluminum cladding installation was 94.8% and 85.4% complete respectively. It is anticipated that the installation of remaining internal cladding and the removal of temporary scaffolds will be completed in the fourth quarter of 2017. The ABWF and building services works in the Atrium area are progressing in full swing and targeted for completion in the first quarter of 2018.

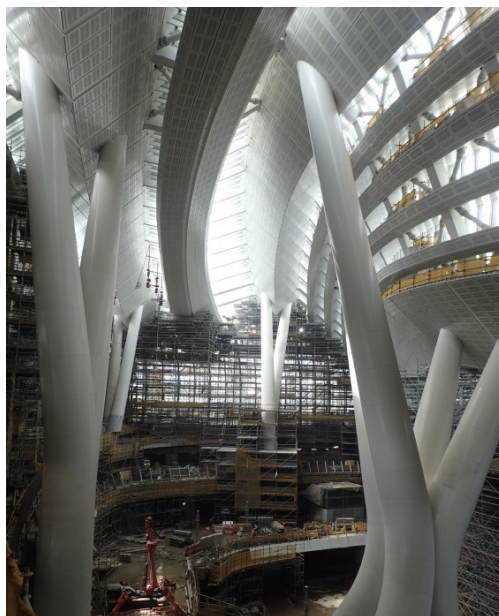
¹ Sum of all weighted percentages completed of all major contracts



Construction of the eastern arch of the Station Entrance Building



Weather-tightness for the main roof of the Station Entrance Building has been achieved



Installation of internal cladding panels at West Kowloon Station

6. The reinstatement of Jordan Road footbridges and the construction of footbridges connecting West Kowloon Station with Kowloon Station, Kowloon Station Development, Austin Station and West Kowloon Station Bus Terminus are in progress.



The footbridge connecting West Kowloon Station with Austin Station

7. Stage 1 opening of the Lin Cheung Road / Austin Road West Underpass has been implemented in September 2017. The remaining stages of the Underpass will be opened in phases at the end of 2017 and in the first quarter of 2018.



Lin Cheung Road / Austin Road West Underpass is partially opened

(III) XRL Trains, E&M and Signaling Systems

8. Works under various E&M contracts are in progress with the overall

completion rate at 93.8% as at the end of September 2017.

9. Installation of all 72.8km of the 25kV overhead line (“OHL”) wire has been completed. The OHL between the Hong Kong/Shenzhen Boundary (“the Boundary”) and Futian was energized in July 2017 which facilitated the delivery of XRL trains by rail, while the OHL along the remaining six tracks at the Station was energized in August 2017, this makes the OHL along all ten tracks for the XRL opening was energized.

10. Delivery of all nine sets of high-speed train for the XRL project has been completed in August 2017. XRL train type tests, including energy consumption, coupling, traction and braking, etc., have been completed. Reliability run of the trains to accumulate mileage before trial operation has commenced.

11. Integrated T&C with the Mainland has commenced in July 2017 after the signaling and communications systems of the Operations Control Centre (“OCC”) at Shek Kong Stabling Sidings (“SSS”) and the OCC at Guangzhou were interconnected. The performance of tracks, OHL, signaling and communications systems between the Hong Kong and Shenzhen sections has been inspected and verified by the Comprehensive Inspection Train (“CIT”) in July 2017. It is expected that third party independent testing for signaling system and the whole line will be carried out by the China Academy of Railway Sciences (“CARSci”) in the fourth quarter of 2017.

12. For the tunnel section, installation of building services equipment in the Ventilation Buildings (“VB”) has been substantially completed. Most of the inspection by the Fire Services Department (“FSD”) has been completed for all the ancillary buildings, including VBs, Emergency Access Point (“EAP”), plant buildings and SSS. Other statutory inspections by respective Government departments, such as Water Supplies Department (“WSD”), Buildings Department (“BD”), Electrical and Mechanical Services Department (“EMSD”), etc., are being conducted.

13. All 104 tunnel ventilation fans in the VBs and the Station have been started up. Air flow measurement for ventilation fans at VBs has been substantially completed while measurement for the ventilation fans in the Station is in progress. Control mode testing with the centralized computer equipment is being carried out.

14. For the radio communication systems, FSD radio functional inspection at all VBs has been completed and the Hong Kong Police Force radio base station has been integrated with its central equipment. For the fixed communication systems, the Public Address (“PA”) speaker installation and testing of broadcast messages along all platforms at the Station have been substantially completed.

15. At the Station, E&M contractors have been given access to all areas for E&M installation under Contracts 810A, 810B and 811B. Building services of the Station were 91.7% complete compared to the planned target of 74.8%.

16. There are a total of 148 lifts to be installed in various locations including the Station and VBs etc. Access to 140 lift shafts has been given for installation, in which 47 lifts have obtained Use Permits. At the Station, installation of 120 lifts has commenced, among which 88 lifts have already gone through the initial Stage 1 testing with the temporary power supply. Meanwhile, installation of all 71 escalators in the Station is underway, with 46 of them having already been 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.

17. The installation of the Environmental Control System (“ECS”) at the Station South has been substantially completed and the T&C is progressing well. Meanwhile, the progress of the installation of ECS at the Station North and the Customs, Immigration and Quarantine (“CIQ”) area of both the Mainland and Hong Kong is progressing in full swing, with major equipment installation having been completed.

18. The power supply system installation is progressing steadily. Cable

laying work at the Station South has been substantially completed, while cable laying work at the Station North and both the Mainland and Hong Kong CIQ areas is in full swing.



Lighting of the arrival hall at the Station is powered on

19. Subsequent to the completion of fire services equipment installation at the Station South, installation of fire services equipment at the Station North and Level B2 at the centre area of the Station has also been substantially completed, while the installation work at other areas are still continuing. The sump pumps at the Station South and Station North areas are being tested and energized.

20. FSD inspection for Station Approach Tunnel South (Contract 811B) area and Station North (Contract 810A) area has commenced in August 2017 and September 2017 respectively, while the FSD inspection in the Station South (Contract 810B) is progressing.

(IV) Construction Challenges

(a) West Kowloon Station

21. While the installation of internal and external cladding panels at the SEB is progressing, the key focus now is to complete the remaining ABWF and building services works in the Atrium to be ready for FSD inspection. The Corporation continues to closely monitor the works progress.

22. 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.

(b) Cross-boundary Testing and Commissioning

23. The cross-boundary T&C is also critical to the completion of the Project. The Corporation is working closely with the Mainland to complete the T&C in early 2018.

(c) Labour Issues

24. As at the end of September 2017, a daily average of 7,214 construction workers and technical / professional staff members were employed for the works. The demand for E&M workers remained high due to the continuing E&M installation and T&C works in the Station.

(V) Preparation and Interface Works

25. Following the substantial completion of civil construction works, land that has been temporarily occupied for XRL project is progressively reinstated and returned to the Government. There will be one remaining works area at the Nam Cheong Park which will be maintained beyond the completion of the Project, with relevant reinstatement works to be followed. The Corporation will keep monitoring the reinstatement status and return the temporary lands to the Government as soon as possible.

(VI) Updated Financial Situation of the XRL project

26. As at 30 September 2017, the cumulative expenditure for the awarded contracts was \$66.6 billion.

27. 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

November 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: 96.9% [as at end September 2017]

Progress of Key Civil Works Contracts

Cumulative progress of contracts for the Station construction:

Contract No.	Concrete structural works	Station excavation works
	End September 2017	End September 2017
810A	98.9% (97.2%)	100% (99.8%)
810B	100% (99.6%)	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 September 2017	End September 2017
811A	100%	100%
811B	95.5%	90.5%
820	100%	100%
821	100%	100%
822	100%	100%
823A	100%	100%
823B	100%	99.9%
824	100%	99.4%
825	100%	99.9%
826	100%	100%

Cumulative progress of E&M works:

E&M Works Progress	Actual progress	Planned progress*
	End September 2017	End September 2017
Station Building Services	91.7%	74.8%
Track Laid	100%	99.9%
Overall installation	92.3%	75.8%
Overall E&M	93.8%	79.7%

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

Annex 2 – Financial Expenditure

Expenditure report ending 30 September 2017

Table 1 – Situation of Expenditure

	Awarded contract sum for the contracts (\$ million)	Cumulative expenditure (\$ million)
Railway Tunnels	22,549.0	30,473.8
Station	14,620.5	26,344.5
E&M Works	8,429.4	9,803.8
Total	45,598.9	66,622.1

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	440	9,268	2,579
Station	129	10,078	6,291	273	1,675	729
E&M Works	7	841	586	110	4,679	1,306
Total	258	14,242	8,615	823	15,622	4,614

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

The amount awarded means the payment for claims resolved.

As at 30 September 2017, the Corporation had received 1,081 substantiated claims and the amount claimed in total was approximately \$29.9 billion, representing 65.5% 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 September 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 \$4,614 million have been made for some cases.