

Translation**For Information****May 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 31 March 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 31 March 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 first quarter of 2017 (i.e. from 1 January

to 31 March 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 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 90.0% as at the end of March 2017, which was ahead of the planned progress of 85.9% 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 the construction of West Kowloon Terminus (“WKT”) North (Contract 810A) (including the works for port area facilities), and the works contracts for electrical and mechanical (“E&M”) systems currently being carried out in the WKT, especially those related to fire services equipment, the progress of which requires continual and close monitoring. As the testing and commissioning (“T&C”) of the XRL is due to commence in the second half of 2017, the associated preparatory works have to progress 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 closely monitor the progress of such works, the progress of which is set out below.

(a) Construction of WKT North (Contract 810A)

7. According to the MTRCL's progress report, the most critical area in relation to the construction of WKT North at the moment is the installation of external wall systems ("EWS") for the steel structure of the Station Entrance Building ("SEB").

8. The HyD has always been very concerned about the progress of the EWS installation of the SEB. The glazing panels and aluminium panels of the EWS are being fabricated in prefabrication yards. The cumulative progress of fabrication of glazing panels and aluminium panels were 85% and 44% respectively, and were behind schedule. However, it did not impact on the overall installation programme. The MTRCL has arranged with the contractor to increase the number of prefabrication yards as well as to streamline the installation and materials supply processes in order to improve the productivity for meeting the installation requirement.

9. The concrete structural works of various floor levels of the WKT was nearing completion. Its cumulative progress as at end March 2017 was 96%. The MTRCL will continue to monitor the contractor's construction arrangement so as to complete the remaining concrete structural works as soon as possible.

10. Further, the construction of Mainland port area at the WKT is in progress. The construction of concrete partition walls was substantially completed as at end March 2017, and finishes works, tile flooring and screeding works progressed as planned.

(b) Construction of Approach Tunnel at the North of WKT

11. As regards the risk of slippage for road construction works at the north of Jordan Road under WKT Approach Tunnel (South) (Contract 811B) identified by the HyD in the last quarter, the progress has improved this quarter after the implementation of improvement measures by the MTRCL. The HyD will continue to monitor the progress of the remaining works in conjunction with its M&V Consultant.

(c) Track Laying Works

12. The track laying works of the entire XRL project has been substantially completed.

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

13. The cross-boundary tunnel will need to be connected to the high speed rail network of the Mainland in order for the T&C and trial operations of the XRL to proceed. The construction of Mainland section of cross-boundary tunnels is progressing and has generally met the conditions for the commencement of T&C and trial operations. The HyD will continue to liaise with the Mainland authorities concerned and closely monitor the progress of the remaining works in conjunction with its M&V Consultant.

(e) Electrical and Mechanical Systems

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

15. At the WKT, the contractors for various BS systems continued the installation and testing of fire services and other E&M equipment at the south and north ends of each level of the WKT. The HyD noticed that there is risk of slippage in the installation of fire services equipment. In addition, a substantial volume of drawings requires Fire Services Department’s approval. This might affect the subsequent inspection of such equipment. The HyD has urged the MTRCL to strengthen manpower and supervision in order to meet the construction and submission requirements, thus ensuring that the fire services inspection can progress as planned. The HyD will step up coordination and monitoring.

16. On the tunnels, the overhead lines in the southbound tunnel from the cross-boundary tunnel to the Mongkok West Ventilation Building have been installed. The final installation and testing of overhead lines will be the focus of

the next stage of works.

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

18. Amongst the eight ventilation buildings, fire services inspections of the Mongkok West, Nam Cheong, Kwai Chung and Pat Heung Ventilation Buildings have been completed. Fire services inspections of the Shek Kong Plant Building North and South and the Emergency Rescue Siding have also been completed. The BS installation at the remaining ventilation buildings will gradually complete and the relevant fire services inspections will then commence, and are targeted for completion within 2017.

19. Regarding the control system, the network of Main Control System has been linked up with all ventilation buildings, the SSS, the Operations Control Centre and the centralised E&M equipment room at the WKT. 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 WKT are in progress as planned.

20. 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.

(f) XRL Trains

21. The initial tests for the first and second sets of XRL trains, which have been delivered to the SSS, have been completed in preparation for the integrated T&C in the second half of 2017. The remaining sets of trains will also be delivered to Hong Kong within this year.

(g) Testing and Commissioning and Trial Operations

22. The MTRCL is planning and preparing the associated works for the T&C and trial operations of the XRL to commence in the second half of 2017, including the completion of the up and down tracks of the Hong Kong section,

overhead line and track installation for tracks 4 to 7 in WKT, as well as testing and acceptance of signalling system of the Hong Kong and the Mainland sections, with a view to linking up the Operations Control Centres in Hong Kong and Guangzhou by mid-2017 so as to facilitate the integrated T&C and cross-boundary dynamic test. Relevant Government departments will inspect the relevant facilities.

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

Transport and Housing Bureau
Highways Department
May 2017

For Information

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

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

(Report for the period between 1 January and 31 March 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 31 March 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 January and 31 March 2017.

MAJOR WORKS PROGRESS OF THE XRL PROJECT

(I) Overall Progress of the Construction Works

3. As at 31 March 2017, overall the XRL project was 90%¹ complete against the 85.9% planned progress according to the 2018 Schedule for Completion. The Corporation is closely monitoring the remaining works, including the construction of the West Kowloon Terminus (“WKT”), 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 Terminus

4. 97.3% of the WKT concrete structure has been cast against the planned target of 94.8%.

5. The construction of the Station Entrance Building (“SEB”), which is on the critical path, remains on schedule. The erection of steel members of the SEB has been substantially completed.

6. Around 85% of glazing panels and 44% of aluminum panels for the External Wall System (“EWS”) have been fabricated, and the production rate is being closely monitored. Installation of glazing panels at the SEB was 55% complete and cladding panels installation has commenced in March 2017.

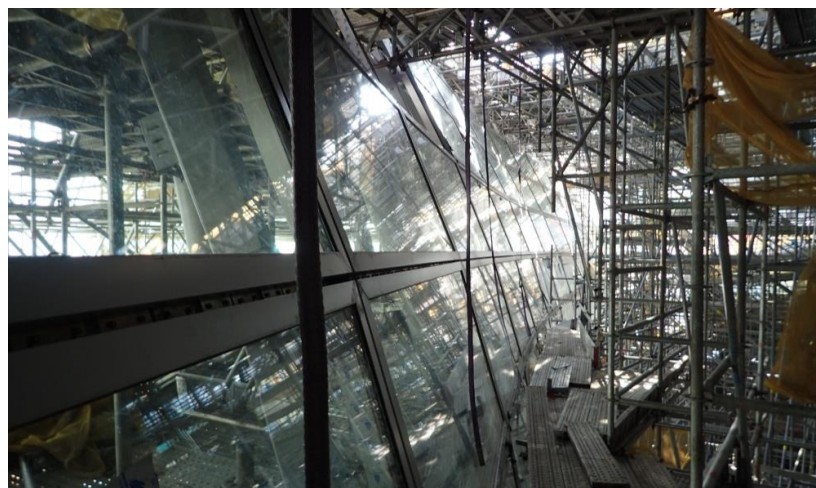
¹ Sum of all weighted percentages completed of all major contracts



External Wall System installation at the eastern side of the Station Entrance Building



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



Installation of glazing panels at the south facade of the Station Entrance Building

7. Internal wall construction in the Mainland Customs, Immigration and Quarantine (“MCIQ”) areas at Levels B2 and B3 was substantially complete. The Architectural Builder’s Works and Finishes (“ABWF”) and E&M works were continuing on site.

8. ABWF works, including installation of ceiling brackets and panels, smoke barriers, fire shutters, floor and wall tiles, door frames, signage, advertising panels, ticket and immigration counters, etc., are progressing at WKT.



Installation of immigration counters in the Hong Kong Customs, Immigration and Quarantine areas at WKT Level B3

9. To facilitate the construction of the underpass at Austin Road West and the reinstatement of a section of Lin Cheung Road southbound in the north of Jordan Road, large-scale temporary traffic management schemes was implemented by the Corporation in the West Kowloon area in April 2017.

(III) E&M and Signaling Systems

10. Works under various E&M contracts are in progress and were 75.5% complete overall.

11. Significant progress has been made on the trackwork and overhead line (“OHL”) with all the track-laying works substantially complete. Rail welding, grinding, gauge check, and installation of track components were in full swing.



Completion of track-laying works
at WKT platform level

12. Installation of the 25kV overhead line wire has reached approximately 63.7km, around 87.4% of overall completion. OHL wire stringing for the Shek Kong Stabling Sidings and Emergency Rescue Siding (“SSS & ERS”), the Up Track and Down Track in the main tunnels, as well as the first four tracks at WKT platform level has been completed. T&C and statutory inspections were in progress to allow for OHL between the Hong Kong/Shenzhen Boundary (“the Boundary”) and WKT energized in April 2017. The remaining OHL works at WKT would be finished in time to prepare for the next phase of energization for the remaining six tracks in the third quarter of 2017. Progress of the installation of trackside auxiliary services in the tunnels, such as lighting, power socket, earthing, fire hydrant drainage pipes, signage, etc., remained on time to meet the schedule of OHL energization.

13. Installation of building services equipment in the Ventilation Buildings (“VBs”) was progressing ahead of schedule; it was 94.7% complete against the planned target of 83.3%. Inspections carried out by the Fire Services Department (“FSD”) at SSS (Phase 1 & Phase 2), ERS Plant Buildings and 4 VBs have been completed, and inspection for the remaining 3 VBs and the Emergency Access Point would follow in the second quarter of 2017. All 42 tunnel ventilation fans in VBs were installed with start-up tests performed, and control mode pattern was being tested in VBs. 48 out of 62 tunnel ventilation fans at WKT and West Kowloon Plant Building were installed and the corresponding start-up tests were

being arranged.

14. Wireless communication networks in tunnels for GSM-R, FSD radio, and passenger mobile phone were installed and commissioned. FSD radio functional inspection from the Boundary to Mongkok West Ventilation Building (“MKV”) was completed satisfactorily, while inspection for VBs was in progress. Mobile phone network signal can now cover the entire tunnel section from the Boundary to MKV. Direct line telephone and video conference facilities between the Operations Control Centre (“OCC”) at the Mainland and Hong Kong were connected.

15. Signaling static interface testing between the Mainland and Hong Kong systems has commenced, and is targeted to connect the communication system and signaling system of OCC at SSS with the OCC at Guangzhou in July 2017.

16. At WKT, E&M contractors have been given access to an area of around 420,400m², i.e. about 87.9% of the total floor area, for E&M installation under Contracts 810A, 810B and 811B. Building services of WKT were 67.5% complete against the planned target of 52%.

17. Out of the 122 lift shafts where access has been given in WKT and VBs, 15 lifts have completed and obtained Use Permits, and installation has started for 85 lifts among which 61 lifts have gone through the initial Stage 1 testing with the temporary power supply. At WKT, 56 escalators are undergoing installation with 38 already installed and having completed initial testing.

18. All 75 11kV transformers have been energized at various VBs, SSS and WKT substations to enable E&M system T&C. All 11kV cables in the main tunnels have been laid.

19. The progress of Environmental Control System installation at WKT continues to be steady. All Motor Control Centres at WKT South were installed and being powered up for the T&C of fans and air handling units.



Energization of Motor Control Centre at WKT South

20. The power supply system installation is progressing steadily. System acceptance tests for the 110V DC charger system at WKT South and North have been completed. 11 out of 14 main LV Switchboards have been energized. At WKT South, cable laying works at Levels B2 and B3 is progressing in full swing while laying works at Level B4 has commenced.

21. Pressure tests on FM200 gas fire suppression system pipework at WKT South were in progress with 44 out of 65 systems completed satisfactorily. Preparation for installation of sump pump at WKT South has commenced.

(IV) Construction Challenges

(a) West Kowloon Terminus

22. The fabrication of the EWS internal and external cladding panels is a key focus. The Corporation has been closely monitoring the drawing production, raw materials delivery and fabrication progress.

23. The key target in the WKT South (Contract 810B) is to commence the FSD inspection in May 2017. Extended working hours and additional resources have been deployed to finish the remaining works so as to meet the schedule.

(b) Labour Issues

24. As at the end of March 2017, a daily average of about 8,472 construction workers and technical / professional staff members were employed for the works during the reporting period. The demand for E&M workers has been increasing since the project moved towards installation and finishing works.

(V) Preparation and Interface Works

25. Construction of the MCIQ areas remains on the critical path. Internal wall construction was substantially complete, and the ABWF and E&M works are in progress. In view of various works are being carried out concurrently, individual contractors have to coordinate closely to avoid potential impact to respective works schedule. The Corporation will continue to monitor the situation. Furthermore, the Corporation will keep on liaising closely with the Mainland authorities in coordinating their equipment installation and T&C through the Government.

26. Following the substantial completion of the construction works on the Mainland side of cross-boundary tunnel, the third XRL train is scheduled to be delivered to Hong Kong by rail in mid-2017. For train delivery and cross-boundary dynamic T&C, coordination with the Mainland authorities, constructor and respective Railway Administration is ongoing through the Government. Detailed arrangement and programme are subject to further confirmation in collaboration with respective parties.

(VI) Updated Financial Situation of the XRL project

27. As at 31 March 2017, the cumulative expenditure for the awarded contracts was \$62.6 billion.

28. 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
MAY 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: 90% [as at end March 2017]

Progress of Key Civil Works Contracts

Cumulative progress of contracts for WKT construction:

Contract No.	Concrete structural works	Terminus excavation works
	End March 2017	End March 2017
810A	96.3% (93.1%)	99.9% (99%)
810B	100% (99.3%)	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 March 2017	End March 2017
811A	100%	100%
811B	90%	88.3%
820	100%	100%
821	100%	100%
822	100%	99.9%
823A	100%	100%
823B	100%	99.7%
824	99.4%	98.4%
825	99.9%	99.6%
826	100%	100%

Cumulative progress of E&M works:

E&M Works Progress	Actual progress	Planned progress*
	End March 2017	End March 2017
WKT Building Services	67.5%	52%
Track Laid	99.7%	94.6%
Overall installation	70.1%	47.7%
Overall E&M	75.5%	62.3%

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

Annex 2 - Financial Expenditure

Expenditure report ending 31 March 2017

Table 1 – Situation of Expenditure

	Awarded contract sum for the contracts (\$ million)	Cumulative expenditure (\$ million)
Railway Tunnels	22,521.0	30,111.4
WKT	14,615.9	24,072.6
E&M Works	8,283.2	8,459.0
Total	45,420.1	62,643.0

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	427	9,310	2,447
WKT	129	10,078	4,331	255	1,666	697
E&M Works	7	841	586	95	4,267	662
Total	258	14,242	6,655	777	15,243	3,806

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

[#] The amount awarded means the payment for claims resolved.

As at 31 March 2017, the Corporation had received 1,035 substantiated claims and the amount claimed in total was approximately \$29.5 billion, representing 64.9% 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 31 March 2017, 258 cases were resolved and about \$6,655 million was awarded, representing about 14.7% 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 \$3,806 million have been made for some cases.