

**Select Committee to Inquire into the Background of and Reasons for the
Delay of the Construction of the Hong Kong section of the Guangzhou-
Shenzhen-Hong Kong Express Rail Link**

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I. Introduction

1. This Statement is prepared in response to the invitation by the above-captioned Select Committee to me to attend a hearing and to submit a Statement.
2. This Statement contains information relevant to the Select Committee's major areas of study. It has been prepared with the assistance of, and includes information provided by, various members of the Corporation's management team responsible for the project.
3. I am the Chief Executive Officer of the Corporation. I was appointed Chief Executive Officer on 16 March 2015, having been Acting Chief Executive Officer since 16 August 2014.
4. I joined the Corporation in February 2002 as Finance Director, with responsibility for the financial management of the Corporation's affairs. In May 2008, I was re-titled Finance and Business Development Director, assuming responsibility also for development of the Corporation's business in Mainland China and overseas. I became Deputy Chief Executive Officer in July 2012, with responsibility primarily for continuing the growth of the Corporation's businesses outside Hong Kong.

II. Background of and reasons for the project delay, as announced by the Government and the Corporation in April 2014

- (a) **Scope and implementation schedule of the construction of the XRL ("the project")**

The project

5. The XRL is an approximately 26km long underground rail corridor, running northward from a new terminus in West Kowloon to the boundary between Hong Kong and Shenzhen, where it connects with the Mainland section. An alignment plan of the XRL and an aerial view of the location of West Kowloon Terminus ("WKT") are at **Annex 1**. The XRL is the world's first all-underground high-speed

railway project and WKT is the largest excavated underground high-speed rail station in the world.

6. It is the first Hong Kong railway project to be constructed under the service concession approach, in which the Corporation manages the construction of the railway whilst the Government pays the construction and management costs.
7. It is a large, complex and challenging project including:
 - (a) an underground terminus at West Kowloon occupying 11 hectares and bounded by Kowloon Station (Airport Express and Tung Chung lines) to the west, Austin Station (West Rail line) to the east and the West Kowloon Cultural District to the south;
 - (b) approximately 25km of twin track tunnels between the WKT area and the boundary between Hong Kong and Shenzhen; and
 - (c) 7 ventilation buildings (including emergency access points), a further emergency access point at Tai Kong Po and Stabling Sidings and an Emergency Rescue Siding at Shek Kong.
8. The project is being constructed under a number of Design, Civil Works, Electrical & Mechanical (“**E&M**”) and Architectural Builders Works & Finishes contracts (together “**Third Party Contracts**”). Of the major Third Party Contracts (i.e. contract sums greater than HK\$50 million), there are 20 Civil Works contracts and 22 E&M contracts.
9. There follows a general overview of the project, with reference to a number of the major Civil Works contracts, to provide the Select Committee with an appreciation of its scale and complexity. Further details of the project and its status as of the end of April 2014 are set out in particular in:
 - (a) the Corporation’s report to the Legislative Council submitted on 2 May 2014 (CB(1)(1354/13-14(01)) (“**the 2 May 2014 Report**”) and:
 - (b) the First Report by the Corporation’s Independent Board Committee (“**IBC**”) on the Express Rail Link Project published in July 2014 (“**the 1st IBC Report**”).

West Kowloon Terminus

10. WKT will have 15 tracks, 6 for short-haul trains and 9 for long-haul trains. Based on the initial operating requirements for the project, from an early stage of the project it was intended under the project programme that WKT would be delivered in two phases: 10 tracks (4 for short-haul trains and 6 for long-haul trains) were originally planned to be handed over by August 2015, and a further 5 tracks in 2021 or later depending on patronage.
11. WKT will have four levels below ground, the ground level and one circulation level above ground. This is one of the largest deep excavations ever carried out in Hong Kong. The presence of nearby operating railway lines, high rise buildings and busy main roads adds to the complexity of the engineering challenges posed.
12. WKT is divided into a number of major civil engineering contracts. Among others, these include 810A (WKT Station-North), 810B (WKT Station-South), and 811A and 811B (Approach Tunnels North and South respectively). Contract 810A is the largest Third Party Contract on the project. It requires, among other things, approximately:
 - (a) 1.7 million cubic metres of excavation;
 - (b) 600,000 cubic metres of concrete; and
 - (c) 7,200 tonnes of steel for the roof structure (together with 4,000 tonnes of temporary steelwork for construction).
13. WKT will be approximately 560 metres long (from Jordan Road to its southern end), 200 metres wide and 30 metres deep. It is being constructed using a combination of top-down and bottom-up construction methods. The external walls are formed by diaphragm walls running a total length of 2,800 metres. Approximately 700 large diameter bored piles and 3,300 socketed “H” piles are being installed within the perimeter.

Tunnels

14. The project involves approximately 9.5km of mixed ground tunnelling using Tunnel Boring Machines (“**TBMs**”), 13km of drill and blast excavation and 2km of cut and cover excavation. There will be

emergency evacuation cross-passages at intervals of about 250 metres along the entire length of the rail link.

15. The typical cross sections of the tunnels are about 16 metres wide by 9 metres high (for twin track tunnels) and about 8.5 metres wide by 9 metres high (for single track tunnels).

TBM tunnels

16. Five sections of the tunnels involve the use of mixed-ground TBMs, typically measuring about 9 metres in diameter and over 100 metres in length (including supporting units). These are used to carry out soft ground excavation and short lengths of rock excavation. Four of the sections are:

- (a) Contract 820 - Mei Lai Road to Hoi Ting Road;
- (b) Contract 823A - Tai Kong Po to Tse Uk Tsuen;
- (c) Contract 825 - Mai Po to Ngau Tam Mei; and
- (d) Contract 826 – HK/Shenzhen boundary to Mai Po.

The fifth is a section approximately 0.9km in length under Contract 821, discussed further below.

17. The Contract 820 works involve the construction of twin bored tunnels approximately 3.6km in length, including 14 cross passages, driven north and south from a TBM launch shaft at Nam Cheong measuring 160 metres long and 33 metres deep. That contract also includes construction of a ventilation building and cut and cover tunnels for cross-over tracks. In addition, the scope includes the foundation and structural works for a new housing development, plus advance piling works for three Government proposed footbridges. Contract 820 includes substantial enabling works to facilitate construction of the twin running tunnels. These involve the removal of around 120 existing piles supporting live and abandoned utilities obstructing the path of the two TBMs used.
18. The Contract 823A works involve the construction of two sections of twin bored tunnels with cross passages to the north and south of the Shek Kong Stabling Sidings. The approximate total lengths of the

south and north tunnels (including cut and cover sections) are 0.6km and 1.1km respectively. In total, there are four tunnel ‘drives’ – two for each set of tunnels. In order to construct the tunnels, the contractor is required to excavate shafts to enable the launch of two custom-built TBMs and the retrieval of the south tunnel TBMs.

19. The Contract 825 works involve the construction of twin 2.3km long running tunnels, ventilation buildings, a TBM launch shaft, tunnel cross passages and other associated surface-related external works at the Mai Po ventilation building.
20. The Contract 826 works involve the construction of twin 1.5km long running tunnels which are the most northerly tunnels of the XRL. They run from the boundary between Hong Kong and Shenzhen to the Mai Po ventilation building. This section runs directly under the Mai Po marshes and also passes through a zone of marble which is known to include cavities.

Drill and blast tunnels

21. Three sections of tunnels are being constructed, or mainly constructed, using the drill and blast technique, namely:
 - (a) Contract 821 – Shek Yam to Mei Lai Road;
 - (b) Contract 822 – Tse Uk Tsuen to Shek Yam; and
 - (c) Contract 824 – Ngau Tam Mei to Tai Kong Po.
22. These three sections of tunnels pass under three mountain ranges where the ground is composed mainly of rock of variable strength and quality.
23. The Contract 821 alignment in Kwai Chung District passes through the Tolo Channel Fault Zone, which is approximately 350 metres wide. This is a geologically complex area, characterised by a repetitive succession of poor rock mass conditions with better rock mass conditions in between, along with the potential for extremely high water inflows. The twin tunnel section under Contract 821 is approximately 3.6km long, approximately 2.7km of which is being constructed using drill and blast excavation and the remainder using the TBM method.

24. The Contract 822 tunnels lie below Tai Mo Shan, the highest mountain in Hong Kong, at depths of up to 680 metres measured from the top of the mountain.
25. The most northerly drill and blast section is the section under Contract 824. This section includes the construction of 2.3km long twin bored single track tunnels in rock with cross passages, enlargements for a future connection to Lo Wu and a 90 metre deep shaft at Ngau Tam Mei ventilation building.

Shek Kong Stabling Sidings and Emergency Rescue Siding

26. In order to provide facilities for the storage and servicing of trains in Hong Kong and for emergency evacuation purposes, stabling sidings and an emergency rescue siding are provided at Shek Kong. These works are being carried out under Contract 823B. The stabling sidings will have 8 stabling tracks and 4 maintenance tracks, plus tracks for works trains. There is an open cut emergency rescue siding for the evacuation of train passengers in the event of a fire or other emergency.
27. These facilities are located approximately at the mid-point between West Kowloon Terminus and Futian Station, the first station in the Mainland section, on an area of land 1.5 km long by 230 metres wide. The tunnel tracks in this area emerge from the tunnels into the open cut rescue siding 23 metres below ground.

Project programme

28. As mentioned earlier in this Statement, the XRL is being constructed using the service concession approach, under which the Government pays for its construction and bears the construction risk whilst the Corporation is entrusted with its design and construction project management. The Government retains ownership of the railway, with an understanding that the Corporation will be invited to undertake its operations under a separate agreement.
29. Under an Entrustment Agreement dated 24 November 2008 (“**the 1st Entrustment Agreement**”), the Corporation was entrusted with the performance of relevant design and site investigation activities for the project, subject to monitoring by the Government. Under an Entrustment Agreement dated 26 January 2010 (“**the 2nd Entrustment**”), the Corporation was entrusted with the performance of relevant design and site investigation activities for the project, subject to monitoring by the Government.

Agreement”), the Corporation was entrusted with the project management of the construction of the XRL, also subject to monitoring by the Government.

30. Further details of the roles and responsibilities of the Corporation and the Government under the 1st and 2nd Entrustment Agreements are set out in Part III(a) below.
31. The 2nd Entrustment Agreement includes a project programme providing for completion of the project within an estimated period of approximately five and a half years, from contract commencement on 26 January 2010 to an estimated handover date of 4 August 2015 (“**the Entrustment Programme**”).
32. The 2nd Entrustment Agreement does not impose an absolute obligation to complete the project by 4 August 2015 considering that, with a project as challenging and complex as the XRL, there is always a risk of delays. Rather, under the 2nd Entrustment Agreement the Corporation is to use best endeavours to complete, or procure the completion of, the project in accordance with the Entrustment Programme and to minimise the effect of any delay. The Entrustment Programme is subject to modification as a result of change, including as a matter of right due to contractor delays that result in extensions of time for the contractors to deliver their obligations.

Project funding

33. Funding for the construction of the XRL under the 2nd Entrustment Agreement was approved by the Finance Committee of the Legislative Council on 16 January 2010 in the total amount of HK\$66.818 billion. The approved funding was comprised as follows:

Item	Amount (billion)
Railway Works Budget	
Construction costs	HK\$43.615
Project Management	HK\$3.261
Contingency	HK\$4.446

Non-Railway Works Budget	
Construction Related	HK\$9.137
Project Management	HK\$0.699
Contingency	HK\$0.954
Other	
Monitoring and Government Facilities	HK\$0.333
Escalation	HK\$4.373
Total Budget Approved by Legislative Council	HK\$66.818

34. Of the amount of HK\$66.818 billion:
- (a) HK\$65 billion was allocated by the Government to carry out the construction and commissioning of the project under the 2nd Entrustment Agreement; and
 - (b) HK\$1.818 billion was retained by Government for project monitoring, Government facilities and other works associated with the project.
35. The sum of HK\$65 billion is referred to in the 2nd Entrustment Agreement as the “Project Control Total”. This sum was agreed between the Corporation and the Government as an estimate of the total cost of the Entrustment Activities (“**the Entrustment Cost**”) and not a cap on project expenditure. The Entrustment Cost was revised downwards from the Corporation’s prior estimates in 2009, but in line with estimates performed independently by Jacobs China Limited (“**Jacobs**”) on behalf of the Government (as noted at paragraph 3.12 of the IEP Report (as defined below)).
36. The Project Control Total is subject to adjustment if the actual Entrustment Cost will exceed this sum. The 2nd Entrustment Agreement makes provision for the Corporation to notify the Government if and when it becomes aware that the Entrustment Cost will exceed the Project Control Total for the Government to take appropriate further action, considering that under the terms of the 2nd Entrustment Agreement it is the Government (and not the Corporation) which bears the risk of the Entrustment Cost exceeding the Project Control Total and providing further funding.

(b) **Reasons for the project delay**

37. As noted by the independent experts appointed by the IBC, Prof. Dr. Bent Flyvberg and Prof. Dr. Tsung-Chung Kao (“**Independent Experts**”), in the Second Report by the IBC on the Express Rail Link Project (“**the 2nd IBC Report**”), nearly all of the major Civil Works contracts on the project have been affected by a number of delay events, some of which have been critical to the project programme path.
38. In order to monitor the impact on the overall programme, the position under the various Third Party Contracts must be considered against the overall critical path to project completion. Additionally it will often be possible to mitigate the impact of a delay through use of delay mitigation and recovery measures. The effectiveness of such measures is closely monitored.
39. Some of the key causes of delay are examined below.

Fast-tracked front end for project programme

40. At paragraphs 3.12 and 3.13 of the Appendix to the 2nd IBC Report, the Independent Experts noted that there was a shorter front end for the project programme than might be expected for a project of the nature of the XRL. The process from Executive Council’s policy support to signing the 2nd Entrustment Agreement took approximately 21 months, significantly shorter than the international benchmark of an average of 37 months.
41. As noted at paragraph 4.32 of the Appendix to the 2nd IBC Report, construction schedules for the Corporation’s projects have historically been short, although they have recently become longer.
42. The Corporation acknowledges that the project schedule overall was tight, but achievable. At paragraph 5.4 of the Appendix to the 2nd IBC Report, the Independent Experts state that there was “*some justification to the optimistic schedule*” based on the successful delivery of previous railway projects by the Corporation and by the (pre-merger) Kowloon-Canton Railway Corporation with schedule and cost overruns that were “*infrequent and minor*”.

43. The project programme itself was developed by the Corporation in consultation with, and based on advice from, various external consultants at both the preliminary and detailed project design stages. The consultants prepared a number of reports and works programmes during the development stage. The programme was continually reviewed by senior construction and design managers and planning and programming managers of the Corporation and discussed with the consultants at programming workshops and other meetings.
44. In establishing the project programme it is relevant to note, as I have mentioned at Part II(a) above, that the 2nd Entrustment Agreement does not impose an absolute obligation that the project be completed by August 2015.

Unfavourable ground conditions

45. As the project involves approximately 25km of underground tunnels and an underground station as deep as 30 metres below surface level, ground conditions are a major determinant of project progress. Unfavourable ground conditions have been a significant cause of delay. These conditions include higher than anticipated rock head levels, weak seams, the presence of cobbles and boulders, high water inflows and the presence of underground steel obstructions.
46. These conditions were often unanticipated despite extensive site investigation. For example:
- (a) at WKT the drill holes used in the site investigation were spaced on average 14.4 metres apart, which is in line with the relevant Government guidelines and is also closer than the industry norm. However, due to the vertical formations of the bedrock at the WKT site, even with closely spaced bore holes, it is still possible to miss weak seams of rock and sub-surface boulders. Variable rock head in several locations resulted in excessive rock having to be removed to meet the requirements of rock quality for the panels on which the WKT diaphragm wall are founded;
 - (b) for tunnels, in addition to conventional drill holes, the project team also used unconventional approaches such as electromagnetic waves as well as horizontal/directional drill holes to retrieve

geological conditions along the tunnel alignment. However, there were still areas where these ground investigation methods were unable properly to ascertain the geological conditions through which large sections of the tunnels would have to be excavated or bored. For instance, it was not possible to sink a drill hole of almost 700 metres deep from top of Tai Mo Shan down to the tunnel level. As a result of unforeseen weak seams and faults, unexpected higher rockhead levels and unexpected higher groundwater inflow, tunnel construction progress for contracts such as 822 and 826 was affected.

47. There are also other cases in which the Corporation could not carry out particular ground investigation for reasons beyond the Corporation's control. For example, due to the heavy daily volume of traffic using the eight-lane Jordan Road, road closure for site investigation work was not possible. The ground conditions under Jordan Road could not be adequately documented until the road was moved from its original location after construction had started. It is for this reason that the ground conditions and extensive utilities (and how closely laid and intertwined these utilities were) under Jordan Road could not be mapped prior to construction work commencing.
48. Unfavourable ground conditions have impacted most tunnel and WKT contracts.

Site possession issues

49. The fast-tracked front end for the project programme put pressure on the acquisition of rights of way prior to construction starting. The preconstruction activities relating to site possession for the XRL included gazettal and amendment to the planning scheme and the process for environmental approvals and community consultation.
50. Late site possession and delays to works area access and approvals have affected a number of contracts on the project. This manifested itself either in delayed ground investigations (for example at WKT) or actual delay to commencement of works pending possession of the site, for example at Choi Yuen Tsuen where land resumption met with strong opposition from land owners and other interested parties.

51. Contracts significantly impacted by such issues include 810A, 810B, 811B, 823A and 823B.

Utility diversions

52. A number of contracts were also affected by unforeseen utilities works. There exists beneath the site area and particularly at WKT a complex and congested network of underground utilities. Although most of these utilities were charted, the configuration, the spread, the alignment of and the slack within the utilities and the locations of the utilities joints as well as the interrelationship between the services could not be identified until the Corporation actually took possession of the site.
53. The maintenance and diversion of the utilities proved to be very challenging and time-consuming. There was often only limited room to divert utilities, which had to be handled with care to ensure the diversions did not disrupt services to nearby buildings.
54. Contracts impacted by utilities diversions include in particular 810A, 810B, 811B, 805, 822 and 824.

Labour

55. The acute shortage of labour has had a significant impact on the project. This is an industry wide factor that has impacted on all projects in Hong Kong. The Corporation was aware that we would face challenges in this area, although the extent of those challenges has been greater than foreseen at the time the original programme was developed.
56. At paragraph 3.24 of the Appendix to the 2nd IBC Report, the Independent Experts noted that on average a 20% labour shortage had been experienced by the Corporation's five Hong Kong railway development projects underway at the time.
57. The Corporation has introduced various mitigation measures to deal with this labour shortage issue, for instance:
- (a) active engagement with Government and the Construction Industry Council concerning enhancement of the Supplementary Labour Supply Scheme and construction-related training schemes;
 - (b) holding job fairs;

- (c) improving working conditions (eg. introduction of a life insurance scheme for contractors' site workers, provision of free health check services); and
 - (d) incorporating additional requirements in works contracts relating to safety and welfare issues, employment of apprentices and graduate engineers and training.
58. Despite these measures labour shortages have significantly impacted a large number of Third Party Contracts. Civil Works contractors for the project have reported a shortage of labour averaging around 20% on a monthly basis for the period between January 2013 to April 2014 (monthly average of 4,894 actual against 6,135 planned). The problem is especially acute with regard to skilled labour, specialist tunnel workers and frontline supervision. Particular trades have reported an average shortage of over 60% in the last year.

Design changes

59. Certain design changes have led to delays. At paragraph 3.22 of the Appendix to the 2nd IBC Report, the Independent Experts noted that the fast-tracked front-end process of the project was a key reason for particular design changes and delays in relation to Contracts 810A, 810B and 811A in particular.

Performance of the TBMs

60. Excavation by the TBMs failed to achieve the planned rate of production on a number of contracts. This has been due to a variety of reasons, including frequent and major mechanical problems with the TBMs and mixed ground conditions which caused high wear and tear to the machines and the need for frequent maintenance, repairs and replacement of components.
61. Significant delays arising from TBM performance or late arrival on site were felt on Contracts 823A, 825 and 826. The 823A TBM was also impacted by flooding arising from a black rain storm in March 2014.

Low Production Rates

62. As a result of the labour resources shortage as highlighted above, together with the combination of unfavourable ground condition, utilities diversion complication, site co-ordination and inadequate work fronts, production rates have fallen short of programme projections in nearly all contracts.
63. Lower than expected excavation rates have led to delays for Contracts 810B, 811B, 822, 823A, 825 and 826.

Views of the Independent Experts

64. The above major causes are similar to those identified by the Independent Experts engaged by the IBC at paragraph 3.11 of the Appendix to the 2nd IBC Report.
 65. The IBC stated (at paragraph 5.2 of the 1st IBC Report) that it had not at the time seen or heard any evidence to suggest that there were obvious or systemic flaws in the Corporation's project management processes which contributed to any delays or that there was any inadequate site investigation or technical preparation by the Corporation.
 66. The Independent Experts also commented (at paragraph 3.48 of the Appendix to the 2nd IBC Report) that the impact of unforeseen events on the project schedule was caused by a challenging schedule rather than by any flaw in engineering or project management, also noting the proactivity (and at paragraph of 5.12 of the Appendix to the 2nd IBC Report "*hard work*") of the project team in pursuing delay recovery measures.
 67. Additional information regarding project progress and delay is contained in:
 - (a) the 2 May 2014 Report;
 - (b) Part IV of the 1st IBC Report; and
 - (c) Part III of the Appendix to the 2nd IBC Report.
- (c) **Delay recovery measures adopted by the Corporation to catch up with the implementation schedule**

Project delay mitigation and recovery measures generally

68. As explained in Part II(a) above, the Corporation is responsible under the provisions of the 2nd Entrustment Agreement to use best endeavours to procure the completion of the project in accordance with the Entrustment Programme and to minimise the effect of any delay.
69. Where progress of works has been delayed, the Corporation will consider mitigation measures to recover the delay. Under the Corporation's internal procedures, approval by the Corporation's Project Control Group is necessary before any delay mitigation or recovery measure can proceed. The Corporation will also share the more significant proposed measures with the Railway Development Office ("**RDO**") of Highways Department ("**HyD**") before they can be approved, and RDO will often raise queries or ask the Corporation to provide additional justification for them. Implementation of the measures is then monitored by the Corporation with oversight from RDO and Jacobs.
70. At paragraph 5.3 of the 1st IBC Report, the IBC noted that they had "*not identified any systemic flaw in the engineering aspects of the project management process which would suggest that [the project] delays should have been avoided or could reasonably have been handled better.*"
71. The Independent Experts, at paragraph 1.5 of the Appendix to the 2nd IBC Report, also noted that the project team sought to recover delays "*through a long list of DRMs*" on nearly all of the major Civil Works contracts. In the view of the Independent Experts, "*this showed that the [project team] was pro-actively addressing the challenges faced.*"
72. Mitigation and delay recovery measures have been developed and implemented on most of the Civil Works contracts. These measures took a variety of forms, but included (as of April 2014):
- (a) use of additional plant and labour resources;
 - (b) plant modifications (eg. to TBMs);
 - (c) changes in construction method;
 - (d) design changes;
 - (e) re-sequencing of works;

(f) revising the programme to completion of non-critical contracts;
and

(g) revising the programme of subsequent E&M works.

73. I now refer by way of illustration to particular mitigation and delay recovery measures implemented as of April 2014.

802

74. In view of the prolonged work leading to a possible 21-month delay under Contract 802 due to complications in the removal of about 300 deformed H-shaped piles at the Nam Cheong Station site obstructing the TBM drive, the Corporation has worked with the Contractor and adopted an alternative pile extraction method called 'Rotator & Wedge'. The H-piles appeared to have been deformed when driven into the ground some years ago. There was no expectation of such piles being so deformed. The DRM also involved re-sequencing of work with additional plant, equipment and machinery to be brought in.

75. As a result, the project team was able to mitigate some of the delay and stay close enough to the works programme such that it has not caused a delay to the overall programme.

810A

76. The Corporation has worked closely with the contractor to maintain and develop a realistic and achievable programme for the remainder of the Contract 810A works by increasing labour resources and the amount of plant and machinery used for particular elements of the works. Examples include extending working hours for the north top-down area and carpenters to minimise concrete pouring times, and arranging an additional mobile crane to allow concurrent working on B4 slabs and adjacent steel cruciform column inserts.

77. In addition, the Corporation has worked with the contractor to investigate and implement specific mitigation measures to recover delay, including adjustments to the works design, sequence and construction methods. Measures implemented up to 31 March 2014 included:

- (a) adding temporary socketed H-piles to advance construction of critical plant rooms at the B3 level;
- (b) revised slab configurations and structural analysis at B2 and B3 which enable a faster build-up of the lateral support system, thereby allowing earlier excavation further down;
- (c) additional steel access ramps within the site to facilitate the excavation sequence; and
- (d) building additional struts across the B2 slab opening to provide earlier lateral support.

811B

- 78. Facing a possible delay of 6 months in the construction of part of the WKT perimeter diaphragm wall under Jordan Road, the Corporation and the contractor agreed to introduce an additional stage in the contractor's proposed Temporary Traffic Management Scheme to divert the existing Jordan Road southwards in February 2012. This enabled the construction of the remaining diaphragm wall panels at the northern part of WKT to commence 6 months earlier.
- 79. This measure reduced the criticality of the originally planned northwards diversion to complete the remaining diaphragm wall panels underneath Jordan Road. The northwards diversion occurred in September 2012. If this DRM had not been implemented, the construction of remaining diaphragm wall could not have taken place until September 2012, which would have resulted in a 6 months' delay to the completion of the WKT perimeter diaphragm wall underneath Jordan Road, and a resulting impact to the commencement of the excavation works.

823A and 824

- 80. Contract 823A was delayed by late land possession at Choi Yuen Tsuen, higher than anticipated rock head levels, TBM breakdown and frequent repair and an inability to achieve planned production rates. Throughout the progress of Contract 823A, the Corporation has worked with the contractor to mitigate and recover delays to the extent possible. The measures which were adopted as of April 2014 included the

execution of a supplementary agreement prescribing numerous delay recovery measures, including overtime working, re-sequencing of works and the addition of a second TBM to accelerate the works.

81. In addition, to mitigate any potential impact to the adjacent Contract 824, the contractor took steps to de-link (from a programming perspective) the TBM for the north tunnels from Tai Kong Po plant building and tunnels. The 824 contractor was directed to construct a niche at the Tai Kong Po shaft to enable the dismantling of the TBM within the niche without obstructing the tunnel internal structural works. If this action had not been taken, it would not have been possible to commence the Tai Kong Po shaft works until January 2015 after the arrival of the TBM.

III. Performance and accountability of the Government and the Corporation relating to the project delay

- (a) Entrustment Agreement between the Government and the Corporation, including the responsibilities and liabilities of the Government and the Corporation thereunder**

Corporation's role under the Entrustment Agreements

82. The Corporation's role in relation to the project is to execute or procure the execution of the design, site investigation, construction and commissioning of the XRL in accordance with the provisions of the 1st and 2nd Entrustment Agreements.
83. In particular, the Corporation must execute or procure the execution of the Design and Site Investigation Activities (as defined in the 1st Entrustment Agreement) and the Entrustment Activities (as defined in the 2nd Entrustment Agreement), and is responsible to the Government under the 2nd Entrustment Agreement for the care of all works constructed under the project from the commencement of construction until the date of handover of the works to the Government.
84. Apart from a small amount of railway system-related design work performed directly by the Corporation under the 1st Entrustment Agreement, the Corporation has appointed third party contractors to

perform the design, site investigation and construction of the various parts of the project in accordance with the specifications and terms in their respective contracts. The contractors for the various works all have detailed and defined obligations in their contracts for ultimate delivery of specified parts of the project.

85. The Corporation is responsible for overseeing and co-ordinating the work of the third party contractors, “*as a project manager working on behalf of Government*” as noted at paragraph 5.15 of the 1st IBC Report. The Corporation applies its own project management systems and procedures to manage the project and its compliance with the terms of the Entrustment Agreements.
86. Under the 1st Entrustment Agreement, the Corporation warrants in particular that the Design and Site Investigation Activities will be carried out with the skill and care reasonably to be expected of a professional and competent design engineer and project manager.
87. Under the 2nd Entrustment Agreement, the Corporation warrants in particular that, in the case of those Entrustment Activities that relate to the provision of project management services, it will carry out such Entrustment Activities with the skill and care reasonably to be expected of a professional and competent project manager whose role includes, in essence, the procurement, co-ordination, administration, management and supervision of the design and construction of works, the procurement of related materials, and the management and enforcement of related claims.
88. As explained earlier in this Statement, the Entrustment Programme set out in the 2nd Entrustment Agreement refers to an estimated handover date for the project of 4 August 2015. The Corporation is responsible to use best endeavours to complete, or procure the completion of, the Entrustment Activities in accordance with the Entrustment Programme and to minimise any delay.
89. The Entrustment Programme may be modified by agreement between the Corporation and the Government, or adjusted by the Corporation in the event of delay caused by one or more delaying events specified under the 2nd Entrustment Agreement (including any extension of time

granted to a contractor under a Third Party Contract other than as a result of the Corporation's default).

Corporation's management systems and procedures

90. Under the Entrustment Agreements, the Corporation is required to act in accordance with its management systems and procedures, as may be updated from time to time, in the following areas:
- (a) organisation and management responsibilities (further information concerning the functions and responsibilities of the Board, Executive Committee and project team in relation to the project are contained at Part III(b) below);
 - (b) project management and control;
 - (c) procurement; and
 - (d) commercial settlements.
91. The Corporation's project management systems and procedures are set out in the Corporation's Project Integrated Management System ("PIMS") and Procurement & Contracts Procedures documents. The documents cover all project delivery areas including programme management, design management, construction management, safety management, environmental management, cost management, procurement, contract administration, reporting and safety. They are designed, and operate, in accordance with recognised international standards on safety, quality, and risk and asset management, as well as internationally recognized good practices.
92. In particular, the PIMS has been in use for over 20 years. It is certified to be in compliance with ISO 9001 "Quality management systems – Requirements" and is continuously updated and improved under the oversight of a dedicated steering group within the Corporation which meets on a quarterly basis.
93. RDO commissioned Lloyd's Register Rail (Asia) Limited ("**Lloyd's**") in early 2008 to review and recommend appropriate institutional arrangements for the entrustment of the project to the Corporation. Lloyd's reported that the Corporation's project management processes were "*known to be robust and in line with industry best practice. They*

are regularly reviewed and audited by outside bodies and have been proven and refined through the delivery of many high-quality railway projects” by the Corporation.

94. As part of the Corporation’s own assessment of the suitability of its project management arrangements for the XRL and Shatin to Central Link projects, Ernst and Young performed a review of the Corporation’s project control systems, processes and procedures in January 2009. Its review did not note any significant weaknesses. The PIMS was also reviewed independently by Scott Wilson Business Consultancy in May 2009 and found to be “*fit for purpose with no significant shortfalls or omissions*”.
95. The Corporation also conducts regular internal audits of various kinds on its project management processes and compliance with the PIMS. These include:
- (a) self quality audits within the project team to confirm compliance with the requirements of the PIMS procedures. The audits are performed by management staff who are independent from the areas of work being audited;
 - (b) an annual internal quality audit performed by the Project Quality Section which is independent from the teams responsible for project delivery. The audits aim at determining conformance to and the effective implementation of the PIMS;
 - (c) technical compliance audits by the Corporation’s Project Engineering Department; and
 - (d) audits by the Corporation’s Internal Audit Department.
96. The internal audits were reviewed by the IBC and the Independent Experts and commented on at paragraph 3.15 of the 1st IBC Report and paragraphs 3.34 to 3.39 of the Appendix to the 2nd IBC Report. In summary, the IBC found that the audits did not reveal any significant deficiencies with the Corporation’s project management processes, that any necessary improvements identified were promptly addressed and that they had seen no evidence that the project team had not acted in compliance with the systems and procedures established in accordance with the requirements of the 2nd Entrustment Agreement.

97. Compliance with the PIMS and Procurement and Contracts Procedures in relation to the project is also subject to frequent audits by the Government's independent monitoring and verification consultant, Jacobs.
98. Jacobs performed a total of over 250 audits between January 2010 and April 2014. The audits covered the Corporation's technical compliance, process compliance and financial compliance with the PIMS and Procurement and Contracts Procedures in managing different aspects of the project including cost, design, construction, programming, quality, safety and environmental issues for all major Civil, E&M, signalling, rolling stock and supply contracts.
99. The audit teams comprised senior professional engineers from Jacobs' Hong Kong and UK offices. The audit reports in relation to the audits performed from Jacobs disclosed no significant deficiencies other than certain observations such as opportunities for improvement (mainly related to safety reporting on near misses) and updating of contractor submissions in method statements, in relation to which improvement actions were taken.

Reporting to Government

100. Under the Entrustment Agreements, the Corporation is required to report regularly to the Government on the status and progress of the project. Further information concerning the Corporation's reporting obligations to the Government is set out in Part IV(b) below.

Government's role under the Entrustment Agreements

101. Under the 1st Entrustment Agreement, the Government is responsible for financing the full amount of:
 - (a) the Design and and Site Investigation Cost (as defined in the 1st Entrustment Agreement, being essentially the costs incurred by the Corporation and third party contractors in relation to the Design and Site Investigation Activities subject to an agreed overall cap); and

- (b) Direct Costs (being charges, costs and amounts payable to any Government department, bureau, agency or body in relation to the Design and Site Investigation Activities).
102. Under the 2nd Entrustment Agreement, the Government is responsible for financing the full amount of:
- (a) the Entrustment Cost, being the total cost of the Entrustment Activities including the Corporation's own project management fee ("**Project Management Cost**") and costs certified by the Corporation as due to contractors under Third Party Contracts; and
 - (b) Direct Costs (principally again being Government-related charges in relation to the Entrustment Activities).
103. The Project Management Cost is a sum of HK\$4,590 million specified in the 2nd Entrustment Agreement. The Corporation and the Government are required however to negotiate in good faith to agree an increase or decrease in the Project Management Cost where a material modification to the scope of works under the 2nd Entrustment Agreement, Entrustment Activities or Entrustment Programme is likely, in the Corporation's reasonable opinion, to result in a material increase or decrease in its project management responsibilities or costs.
104. The Government is also required to pay all land acquisition, clearance and related costs (including third party compensation claims).

Monitoring

105. The Government (through HyD, the Transport and Housing Bureau ("**THB**") and the Government's independent monitoring and verification consultant, Jacobs, undertakes a monitoring role in relation to the execution of the project. Details of the Government's role in relation to monitoring are set out in Part IV(b) below.

Other Government obligations

106. The Government is required to use reasonable endeavours to provide the Corporation with information or assistance of a non-financial nature to enable the Corporation to meet its obligations under the Entrustment Agreements. This assistance includes:

- (a) taking all reasonable steps to procure that all necessary licences and consents required in connection with the design, construction and operation of the XRL are given or granted as expeditiously as possible; and
 - (b) liaising with relevant Mainland authorities to facilitate the Corporation's interface with the relevant Mainland parties.
107. The Government is also required to use reasonable endeavours to obtain, and pass to the Corporation, all land (including land not held by Government at the date of the Entrustment Agreements) required by the Corporation for the construction of the XRL works.
108. The RDO, which is part of the HyD, co-ordinates the various Government departments in all matters relating to the project. RDO acts as the Corporation's main point of contact for most items involving the Government.
109. Further information concerning the contractual obligations of the Corporation and the Government under the 2nd Entrustment Agreement is set out in particular at paragraph 3.1 of the 1st IBC Report.
- (b) Performance and accountability of the Corporation and its senior management in respect of the supervision of the implementation of the project and the project delays**

Functions and responsibilities of the Board, Executive Committee and project team in relation to the project

Board

110. The overall management of the Corporation's business is vested in the Board. The Board has delegated day-to-day management of the Corporation's business to the Executive Committee. The Board focuses its attention on matters affecting the Corporation's overall strategic policies, corporate governance, finances and shareholders.

Executive Committee

111. The Executive Committee consists of the Chief Executive Officer and the Corporation's Executive Directors (together the "**Executive Directorate**") and the General Manager – Corporate Relations, and is

responsible for the management of the Corporation's business on behalf of the Board. It reports to the Board accordingly at regular intervals.

112. As Chief Executive Officer since March 2015, I am head of the Executive Directorate and chairman of the Executive Committee. I am responsible to the Board for managing the business of the Corporation generally.
113. Other members of the Executive Directorate currently are:
 - (a) Commercial Director;
 - (b) European Business Director;
 - (c) Finance Director;
 - (d) Legal Director and Secretary;
 - (e) Operations Director;
 - (f) Projects Director; and
 - (g) Property Director.
114. Each of the Executive Directors is responsible and accountable to myself as the Chief Executive Officer, the Executive Committee generally and the Board for the particular functions or areas of the Corporation's business dealt with by the individual Divisions headed by them.
115. The Executive Committee generally meets twice a week, once to review and discuss communication and stakeholder management matters, with regular reports on operational, media, shareholder and other stakeholder issues, and on the second occasion more formally to discuss matters and transactions of a substantive nature brought up by individual Executive Directors, according to their areas of responsibility, which require deliberation and decision at Executive Committee level. Once a month, the Executive Committee will also review and consider business update reports from each Executive Director (except the Legal Director and Secretary).

116. I also hold meetings regularly with other members of the Executive Directorate and the Corporation's senior management team to discuss individual matters of importance or concern as may be required.

Project team

117. The Projects Director, as head of the Projects Division, is in particular responsible and accountable for the planning, design and construction of the XRL and other railway projects approved by the Board to the required safety, quality, environmental, engineering and other relevant standards.
118. The chart at **Annex 2** shows the current organisational structure of the senior management of the project team under the Projects Director.

Establishment of the IBC

119. Following the announcement by the Corporation on 15 April 2014 of a delay to the project, the Corporation's Board established the IBC, initially consisting of six independent non-executive directors.
120. The IBC's terms of reference were, in summary, to:
- (a) review the background of, and reasons for, the revised schedule for the project; and
 - (b) look forward and advise on the manner in which the Corporation could deliver the project in a transparent and timely manner and in accordance with its obligations under the Entrustment Agreements.
121. The IBC appointed the Independent Experts, both with considerable experience in relation to the management of similar projects, to assist it with its review.

1st IBC Report

122. The 1st IBC Report was published in July 2014. Among other findings, the IBC found that:
- (a) it had seen no evidence to suggest that in its day-to-day work the project team had not followed the systems and procedures established in accordance with the requirements of the 2nd Entrustment Agreement and vetted by the Government and Jacobs;

- (b) in particular, it had not seen or heard any evidence to suggest that there were obvious or systemic flaws in the Corporation's management processes which contributed to any delays or that there was any inadequate site investigation or technical preparation by the Corporation;
- (c) since the commencement of the project, the Corporation had implemented processes and procedures to ensure that it was carrying out its obligations under the Entrustment Agreements. The Government had been constantly monitoring the project within the framework provided in the 2nd Entrustment Agreement;
- (d) in the IBC's view, the project team had managed the engineering aspects of the delays in the project arising from a number and wide variety of circumstances and events in a professional manner;
- (e) again in its view, through the life of the project, members of the project team and the Government's representatives had worked together in a cooperative and collaborative manner. Delays against the project programme were reported on a timely basis and accurately to the Government in accordance with the terms of the 2nd Entrustment Agreement;
- (f) there was no attempt by the project team or the Corporation to cover-up or hide the delays being experienced in the various project contracts. The Corporation was at all times transparent and accurate in its reporting of the project against programme and budget. However, the Government was often assured by the Corporation that delays in the project could be recovered to achieve opening in 2015;
- (g) while Government clearly had access to a great deal of information about the delays on the various contracts, it should have been given a fuller assessment of the achievability of the overall project timetable;
- (h) important matters relating to the project were not brought to the attention of the Chairman, Audit Committee or Board. The result was that the Board could not monitor effectively the progress of the project and provide guidance where necessary; and

- (i) the then Chief Executive Officer (“**Former CEO**”) and other members of the Executive Committee except the then Projects Director (“**Former PjD**”) were not aware of the delay in the project timetable to 2017 until it was presented to them by the Former PjD on 12 April 2014.
123. The 1st IBC Report made a number of recommendations to address these issues. The Corporation has accepted the recommendations and has implemented them as set out further in Part V below.

2nd IBC Report

124. The 2nd IBC Report was published in October 2014. The IBC asked the Independent Experts to consider a number of issues in assisting in the preparation of its report. The 2nd IBC Report found among other matters that:
- (a) the Independent Experts agreed with the IBC’s overall conclusion in the 1st IBC Report that they also had seen no evidence that the project team had not followed the systems and procedures of the PIMS;
 - (b) the Independent Experts considered that the impact on the project schedule of unforeseen events was caused by “*an ambitious schedule of implementation*” rather than by any flaw in engineering or project management, noting the hard work of the project team to recover the project through delay recovery measures;
 - (c) the establishment of key reporting milestones, agreed by the IBC and the Independent Experts in consultation with the Corporation’s project team, should facilitate transparency in the reporting of project progress to all stakeholders;
 - (d) in the view of the IBC, it was important for stakeholders to be realistic about the capital intensive nature of a project of the scale of the construction of the XRL. The project costs remained consistent with comparable international projects despite pressures faced by the project, such as the acute shortage of labour, which were outside the Corporation’s control;

- (e) the Independent Experts confirmed the IBC's finding in the 1st IBC Report that detailed progress, cost, contractual, environmental and safety information were presented at meetings attended by all levels of project staff and stakeholders (including representatives of the Government); and
 - (f) the Independent Experts reviewed the changes introduced by the Corporation to its reporting systems and processes since the delay to the completion of the project was announced, and believed there remained scope to introduce enhancements, as recommended below.
125. The IBC accepted the recommendations made by the Independent Experts and made a number of its own recommendations in the 2nd IBC Report. The Corporation has accepted the recommendations and has either implemented, or is in the course of implementing, the recommendations as set out further in Part V below.

Independent Expert Panel Report of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (“the IEP Report”)

126. The Corporation has co-operated in full with the Independent Expert Panel set up by the Government in May 2014 (“**IEP**”) in preparing the IEP Report made public in January 2015.
127. The Corporation has reviewed the IEP's findings and recommendations in detail with the Independent Experts engaged by the IBC and has commented on the same to Government in so far as they concern the Corporation.
128. Various enhancements to the Corporation's systems and processes have already been implemented in light of the findings and recommendations contained in the 1st and 2nd IBC Reports, as explained in Part V below. The Corporation notes that the IEP (at paragraph 7.10 of the IEP Report) has endorsed the recommendations made by the IBC and the Independent Experts.
129. The Corporation will continue to work with the Government so that, going forward, the IEP Report's findings and recommendations are given due consideration in relation both to the project and other current

and future projects entered into with the Government on an entrustment basis.

IV. Whether the Government and the Corporation have deliberately covered up the project delay

(a) Communication/reporting mechanism within the Corporation with regard to the progress of project

130. It is important to stress that the Corporation has never intended to withhold material information concerning the state of progress of the project, in particular whether the XRL was on target to commence operations as scheduled, either from the Government, the Legislative Council or the public.
131. The Corporation has in place various internal communication processes regarding the project. The objective of the processes is to ensure that the communication within and between the Corporation's departments is as open and transparent as is possible and appropriate. This is particularly important for a large and complex project such as the XRL, in which there are numerous interfacing contracts and areas of expertise, and large numbers of the Corporation's personnel involved.
132. A summary of the overall flow of progress reporting within the Corporation in relation to the project is indicated in the flowchart at **Annex 3**. The flowchart shows the reporting process from section or department manager level up to the Corporation's Board. The flowchart indicates the levels at which particular written reports are prepared and reviewed to ensure that actions which need to be taken at a given level are filtered out and that progressive focusing on key executive matters occurs.
133. In general, the Corporation considers that its internal reporting mechanisms operate effectively, but has recognised that there is room for improvement. In light of the issues concerning the internal reporting of delay to the project which became apparent to the Corporation's senior management in April 2014, the Corporation has acknowledged that improvements were required to enhance its internal communication processes concerning the project, in particular its reporting to the Corporation's Executive Committee and Board.

134. In particular, in the 2 May 2014 Report, the Corporation acknowledged that:
- (a) the project team continued to communicate to the Board and the Government that the project was achievable by the end of 2015 in the face of overwhelming evidence from cumulative delays across a number of Third Party Contracts which indicated that this was not so achievable; and
 - (b) the project team became overly confident about the effectiveness of mitigation measures in making up for project delays. This confidence arose from having been able to recover some delays in the project, and past successful experience with other major railway projects.
135. The IBC's findings in the 1st IBC Report essentially confirm the matters acknowledged by the Corporation in the 2 May 2014 Report, whilst also (as mentioned in Part III(b) above) confirming that there was no attempt by the project team or the Corporation to cover-up or hide the delays in the various project contracts, and that the Corporation was transparent and accurate in its reporting of the project against programme and budget.
136. As indicated in Part III(b) above, the IBC made a number of recommendations in the 1st and 2nd IBC Reports to enhance the Corporation's internal reporting system regarding the project which have been, or are in the course of being, implemented. Further details are provided in Part V below.
- (b) Communication/reporting mechanism between the Corporation and the Government in respect of the progress of project**
137. The Corporation provides regular and detailed reporting to the Government concerning the project through progress and costs reports and meetings in accordance with the detailed framework established under the 2nd Entrustment Agreement and the Corporation's PIMS.
138. The Government closely monitors the implementation of the project through a number of channels, as described further below. The RDO has a dedicated division tasked with overseeing the day-to-day planning

and implementation of the project. The division includes a number of civil engineers.

Project Supervision Committee (“PSC”)

139. Pursuant to the terms of the 2nd Entrustment Agreement, the PSC is established by the Government to hold monthly meetings to review progress of the project and to monitor procurement activities, post-tender award cost control and resolution of contractor claims. Representatives from the Corporation, RDO and the THB attend the meetings, which are chaired by the Director of Highways. The PSC also serves as the decisive authority to steer any matters that would affect the progress of the project.
140. The Corporation prepares and provides detailed reports and presentations for the meetings, including information on overall project progress, areas of concern and delay recovery/mitigation measures, and costs information and forecasts. RDO prepares minutes of the meetings.

Project Coordination Meeting (“PCM”)

141. The purpose of these monthly meetings is to discuss day-to-day technical and administrative issues for the project and to monitor various activities for its delivery. Representatives from the Corporation and RDO attend PCM meetings, which are chaired by an officer at Assistant Director level of the Highways Department. The Corporation prepares minutes of the meetings, which are provided to RDO.

Contract Review Meeting (“CRM”)

142. At these monthly meetings, the Corporation provides RDO with information on progress for major civil and electrical and mechanical works Third Party Contracts. Representatives from the Corporation and RDO attend these meetings, which are chaired by the Chief Engineer of the Highways Department.

Project Control Group (“PCG”)

143. The PCG is an internal working group within the Corporation chaired by the Projects Director and meets bi-weekly on the project. The Corporation invites representatives from RDO to attend the meetings to

the extent that the meetings address concession projects (including XRL).

144. Papers are submitted to the PCG generally seeking approval for proposals, or providing information for noting, connected to budget and cost control, tender, contractual change and programme issues. For example, a paper may request agreement to implement delay recovery measures, grant an extension of time to a contractor or a change in design. RDO provides comments on relevant papers and follow-up actions are agreed upon. The Corporation responds to RDO's comments either at the meeting or in subsequent PCG meetings.
145. The PCG also reviews monthly cost reports prepared in relation to the project prior to submission to the Corporation's Executive Committee, which include detailed information on current expenditure, commitment to expenditure and forecast cost information for the project. Copies of the report are provided to RDO.
146. Paragraph 3.55 of the 1st IBC Report found that: *“Through participation in the PSC, PCG, PCM and CRM, members of the Government from the HyD, RDO and/or THB have been given full access to the documents that are circulated and discussed at these meetings including monthly progress reports, relevant presentations materials prepared by the Projects Division and relevant documents relating to other matters discussed at the meetings.”*

Projects Progress Meeting (“PPM”)

147. These meetings are held monthly and are attended by relevant General, Project, Programming and Contracts Administration Managers of the Corporation, together with representatives from RDO. The PPM is chaired by the Corporation's General Manager for the XRL.
148. The objectives of the PPM are to review and discuss project monthly progress reports prepared by the Corporation and the matters raised therein, to review the progress of the project against the agreed programme, and to identify and discuss the resolution of major issues arising accordingly.
149. The monthly progress report for the project, also reviewed by the Projects Director, is prepared with input from all of the Corporation's

site and headquarters teams. Copies of the report are provided to RDO. This report covers relevant progress and project management aspects of each of the Third Party Contracts for the project.

Ad hoc reporting to the Government

150. The above reporting arrangements are supplemented by ad hoc presentations and regular informal reporting at various levels, in particular in relation to challenges on particular third party contracts or programme revision issues.

Monitoring and verification by Jacobs

151. Under the terms of the 2nd Entrustment Agreement, the Government have the right to appoint an external consultant to monitor and verify the Corporation's compliance with the provisions of the 2nd Entrustment Agreement. Jacobs were accordingly appointed in this role by HyD.

152. Amongst other responsibilities, Jacobs has:

- (a) conducted monthly site visits and site meetings (with RDO representatives) with supervisory staff of the Corporation to review progress of various Third Party Contracts;
- (b) prepared regular audit reports on key Third Party Contracts;
- (c) attended monthly CRMs and discussed issues of concern, in particular those with potential impact on project progress and programme;
- (d) engaged in frequent working level contact on site with members of the project team; and
- (e) attended PSC meetings.

153. In the 2 May 2014 Report, the Corporation apologised for not providing the Government, the Legislative Council and the public with an updated assessment of the achievable completion date for the project until April 2014.

154. The Corporation has subsequently adopted a more open and transparent reporting system to ensure that Government, the Legislative Council and the public are kept fully informed about project developments such

as progress of works, delays encountered and proposed measures to address those delays.

155. Further details of the changes made by the Corporation in its various reporting systems regarding the project are referred to in Part V below.

(c) Communication/reporting mechanism between the Corporation and the Government in respect of the announcement of the project delay

156. Detailed accounts of the events and communications which took place between the Corporation and the Government in the months leading up to the announcement of the project delay in April 2014 have been given by the Corporation in:

(a) paragraph 52 of the 2 May 2014 Report; and

(b) Part IV of the 1st IBC Report.

157. Given my role and responsibilities at the time, I was not present, and accordingly do not have first-hand knowledge of events, at the meetings referred to in the accounts above, other than almost all of the Board and Executive Committee meetings, Audit Committee meetings and the July Presentation (as it is described in the 1st IBC Report).

158. Part IV of the 1st IBC Report contains a particularly detailed review prepared by the IBC following interviews with various senior executives of the Corporation and senior members of the project team, and consideration of various documents and information requested. In the circumstances, I believe it is helpful to include and refer to the contents of the review (at **Annex 4**) in order to summarise the communications and reporting which took place during the relevant period to address this aspect of the Select Committee's inquiry.

(d) The timeliness and comprehensiveness of the information provided by the Government and the Corporation to the Legislative Council Panel Subcommittee on Matters Relating to Railways ("RSC") on the project delay

159. As agreed in the RSC meeting held on 16 April 2010, reports on progress and the financial situation of the construction of the project would be submitted at six-month intervals. Seven half-yearly reports

were respectively submitted to the RSC by THB during the period from January 2010 to June 2013. The Corporation prepared the first draft of these reports, which were then reviewed by RDO and THB prior to being submitted to the Legislative Council.

160. After the announcement made by the Corporation in April 2014 concerning the revised programme, the 2 May 2014 Report and a further paper containing supplemental information thereto were submitted to the RSC by the Corporation in addressing the programme revision, challenges on particular Third Party Contracts as well as the budget status up to March 2014.
161. To enhance reporting to the RSC, the format of reports and frequency of reporting have subsequently been changed. Since May 2014, apart from the THB's progress reports, the Corporation has separately submitted its own progress updates as an appendix to the THB's report to the RSC. This arrangement has enabled the Corporation to provide more information on, among other things, the programmes and challenges of critical contracts from the technical point of view. The completion rates of key contracts are also set out. Since March 2015, the frequency of reporting has been increased from half-yearly to quarterly.
162. The Corporation has been invited by the RSC to attend 13 meetings during the period between April 2010 and May 2015 in relation to the project. Senior management personnel, including the Projects Director, XRL General Managers and other key members of the project team, have represented the Corporation in updating RSC members concerning progress and other specified issues, such as safety management measures for XRL trains. The Corporation's Chairman and Former CEO also attended meetings on 5 May 2014 and 19 May 2014 to address members' concerns on the project programme revision in particular.
163. Further information concerning the RSC meetings attended by the Corporation, progress reports and other papers submitted is contained at **Annex 5**.

V. Developments since the announcement of the project delay

Project status

164. The Corporation has enhanced the reporting format and increased the frequency of reporting to the RSC as mentioned at Part IV(d) above. As of 31 March 2015, the overall completion progress of the Project was 68.7% compared with 56% as at 31 March 2014. In the regular reports to the RSC provided by the Corporation, critical challenges currently faced on particular contracts have also been highlighted.
165. The Corporation continues to review the estimated completion time and cost of the project and will update the Government accordingly.

Implementation of the IBC and Independent Experts' Recommendations

166. The Corporation has responded quickly to the findings and recommendations contained in the 1st and 2nd IBC Reports published in July and October 2014 respectively. The following are among the recommendations and resulting enhancements made to the Corporation's systems and processes for managing the project:

1st IBC Report

Review format and content of project reports to the Corporation's Board and Audit Committee

167. The Corporation has reviewed the format and content of project reports to the Board, Audit Committee and Executive Committee. The Corporation has implemented enhanced reporting procedures to facilitate monitoring of project progress, programme and cost, and has issued a specific practice note to strengthen the process for reporting project and contract status using programme key performance indicators.

Review the Corporation's Executive Committee's system of allocating accountability for actions and follow-up actions.

168. The Executive Committee has reviewed its system as recommended, and a revised system is now in place.

Encourage a culture of healthy debate and constructive challenge within the Corporation.

169. The Corporation has rolled out a series of programs (called ‘Culture in Action’) targeted at all management grades to encourage speaking up and constructive debate. The program also calls for enhancement in effectiveness, agility to change and teamwork.

Establish a Capital Works Committee

170. The Corporation’s Board established the Capital Works Committee (“CWC”) in August 2014. The CWC currently comprises six members who are Board directors, five of whom are independent non-executive directors. The Committee has responsibilities including:
- (a) monitoring the construction of the project and the Corporation’s management thereof;
 - (b) reviewing the progress of the project from both a programme and cost perspective; and
 - (c) reporting to the Board on a bi-monthly (and if the Committee deems appropriate ad hoc) basis, in respect of the above.

Undertake reviews of the Corporation’s communications strategy and corporate relations planning

171. The Corporation has reviewed its communications strategy and corporate relations planning and made enhancements.
172. Other than communicating frequently with the local community directly impacted by the construction works, there are also enhanced communication with the general public through mass media, website and other channels on the challenges and progress of the project.
173. As explained further in Part IV(d) above, the THB now provides reports (including enhanced information provided by the Corporation) to the RSC on a quarterly basis, rather than the half-yearly basis adopted prior to 2015.

2nd IBC Report

Board oversight - enhanced reporting to CWC by the project team, in particular as to key reporting milestones and probability of achieving project targets.

174. The schedule of key reporting milestones set out in Schedule 3 of the 2nd IBC Report (as updated and endorsed by the Board) has been adopted and included in the monthly progress reports by the project team and the Project Director's regular reports to the Board. The IBC's recommendations in terms of probabilistic reporting (Schedule Performance Index and Schedule Recovery Index) and adoption of enhanced traffic light warning criteria to show the likelihood of achieving project targets have also been included in the monthly progress reports by the project team and the Project Director's regular reports to the Board.
175. To strengthen its corporate governance further, the Corporation's Board has established a Risk Committee ("RC"). The RC currently comprises seven members, five of whom are independent non-executive directors. The RC's role is to monitor the Corporation's risk profile and to review its top risks, enterprise risk management framework and effectiveness.

Enhanced engagement by senior management with key project stakeholders and Government.

176. Together with the Projects Director and the Corporation's Chairman, I have established enhanced communication channels with the Government and senior management of key contractors, and regular communication is on-going.
177. Regarding the co-location of the CIQ, the Corporation is providing information for Government's discussion of the issue with its Mainland counterparts, with a view to implementing the co-location arrangements at WKT by the time the XRL is commissioned.
178. The Corporation has since 2006 established an XRL Project Steering Group ("PSG"), currently chaired by the Operations Director. The PSG has, and remains, focused on all aspects of preparation for operational readiness of the XRL including liaison with relevant Mainland

authorities and with Government, and preparation of relevant operating agreements.

Revaluation of project cost estimate and use of reference class forecasting.

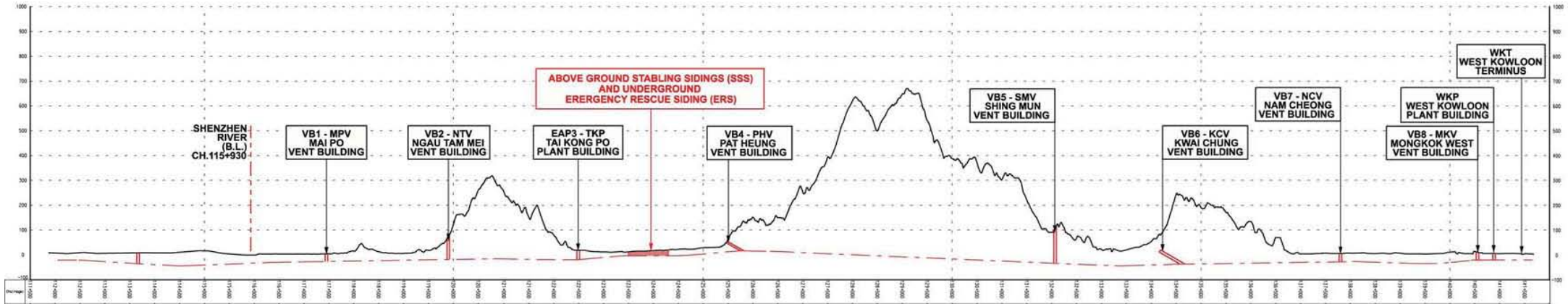
179. The Corporation has undertaken a revalidation of the cost to complete exercise which has been finalized progressively during Q2 2015. Reference class forecasting has been used as a check and balance in relation to the estimation.

Enhancements with regard to project auditing.

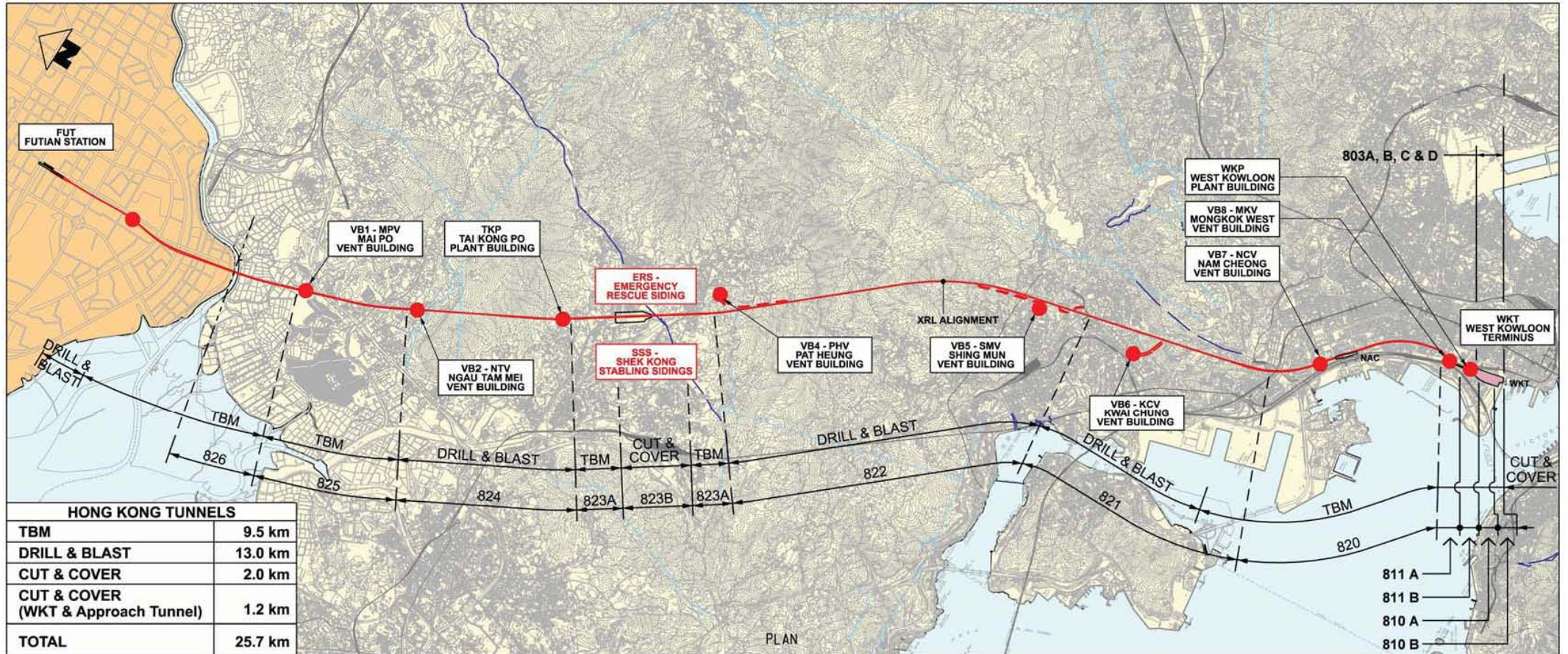
180. The Corporation's Internal Audit Department will be accountable for the auditing of project programme and cost in accordance with the IBC's recommendations.
181. A relationship has been established between the Audit Committee, CWC and RC to ensure adequate information sharing and appropriate oversight of the project between them.
182. In addition, the Corporation is reviewing its PIMS to consider, in particular, introduction of further reporting enhancements to the CWC and Audit Committee.
183. The Corporation considers that implementation of the IBC and Independent Experts' recommendations as discussed above will enhance the Corporation's ability to report on the progress and financial position of the project to the Government and other stakeholders, including the public, in a transparent manner as it has always intended. The Corporation remains committed to managing the project to a successful conclusion, minimising further delay and expenditure to the extent possible.

Lincoln Leong Kwok-kuen
Chief Executive Officer, MTR Corporation Limited
29 June 2015

This Statement has been prepared in English and Chinese language versions. In the event of any inconsistency between them, the English language version shall prevail.



PROFILE

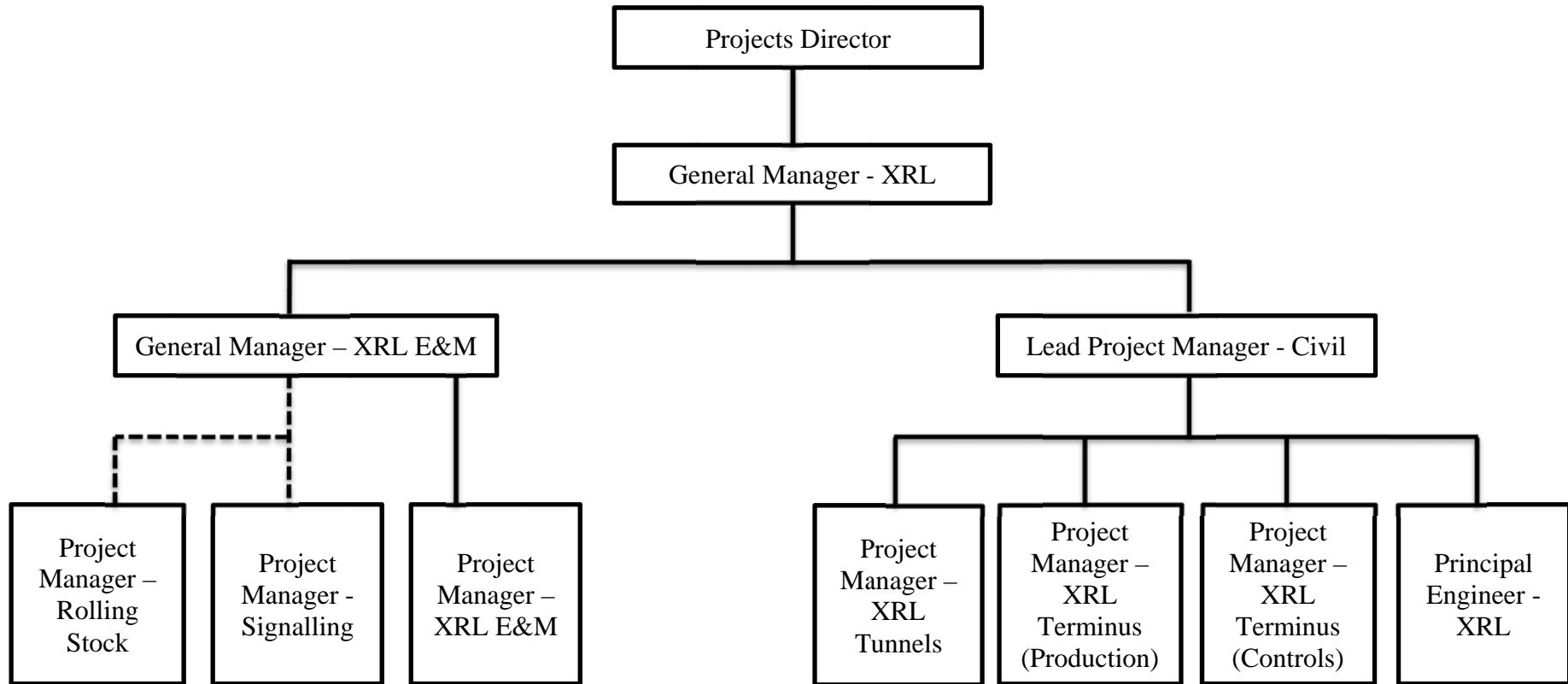


PLAN

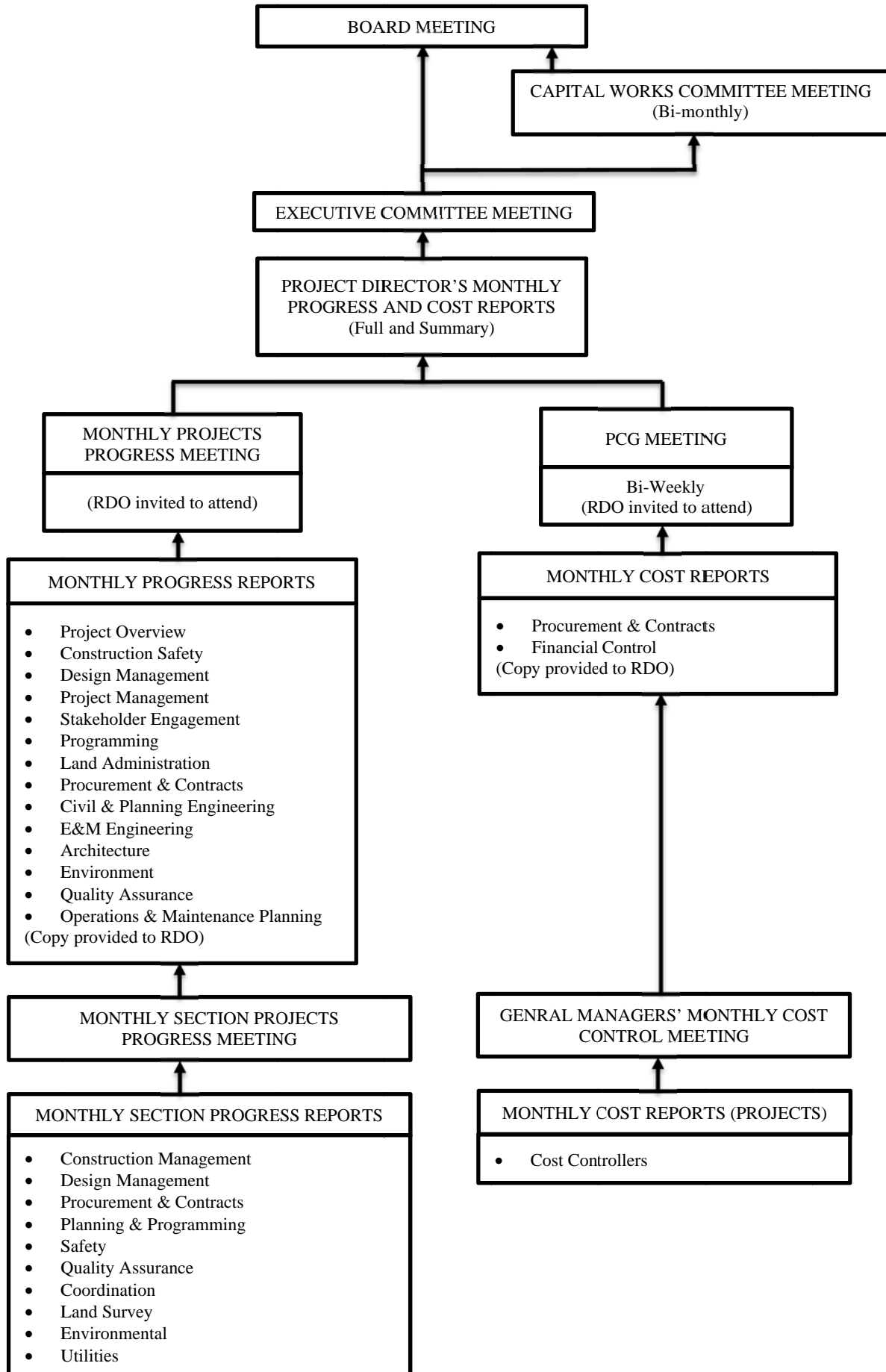
HONG KONG TUNNELS	
TBM	9.5 km
DRILL & BLAST	13.0 km
CUT & COVER	2.0 km
CUT & COVER (WKT & Approach Tunnel)	1.2 km
TOTAL	25.7 km



CORPORATION'S CURRENT ORGANISATION CHART FOR XRL PROJECT TEAM SENIOR MANAGEMENT



CORPORATION'S INTERNAL REPORTING FLOWCHART FOR XRL PROJECT



PART IV OF THE 1ST IBC REPORT – PROJECT HISTORY

References to CEO & PjD in Annex 4 are to the former CEO (Mr. Jay Walder) & former PjD (Mr. TC Chew)

XRL contract award

- 4.1 The REL* was one of the railway projects recommended for implementation in the Railway Development Strategy 2000, a planning framework undertaken by Government for further expansion of Hong Kong’s railway network. Later, the REL became the ERL# being pursued jointly between Hong Kong and the Mainland. In the middle of 2005, KCRC submitted a study report on the Shared Corridor Option together with a proposal for the NOL+. The report also included a Dedicated Corridor Option in which the ERL services would be operating along a completely new rail corridor within Hong Kong.
- 4.2 In February 2006, the then Environmental, Transport, and Works Bureau asked KCRC to proceed with further planning of the NOL and Hong Kong section of the ERL as a combined project under the Shared Corridor Option. In the light of the rail merger discussion held at that time, a joint study team was formed by the Corporation and KCRC to progress the study.
- 4.3 Subsequently, there were changes in the Mainland’s planning parameters significantly affecting the planning of the Hong Kong section of the ERL, in particular on the choice of corridor options. KCRC submitted to Government in the middle of 2007 a project proposal on the Hong Kong section of the ERL on the basis of the Dedicated Corridor Option. The proposed NOL was de-linked from the Hong Kong section of the ERL.
- 4.4 Following the rail merger on 2 December 2007, the Corporation took over the planning of the ERL and changed the acronym for the Express Rail Link to XRL instead of ERL, to avoid duplication with the use of the acronym “ERL” in the existing East Rail Line.
- 4.5 On 22 April 2008, the Chief Executive decided that the Corporation should be asked to proceed with the further planning and design of the Hong Kong section of the XRL on the basis that the Corporation would be invited to undertake the operation of the Hong Kong section of the XRL under the concession approach.
- 4.6 On 24 November 2008, Government entered into an entrustment agreement with the Corporation for the design and site investigation of the Project.

* Regional Express Link

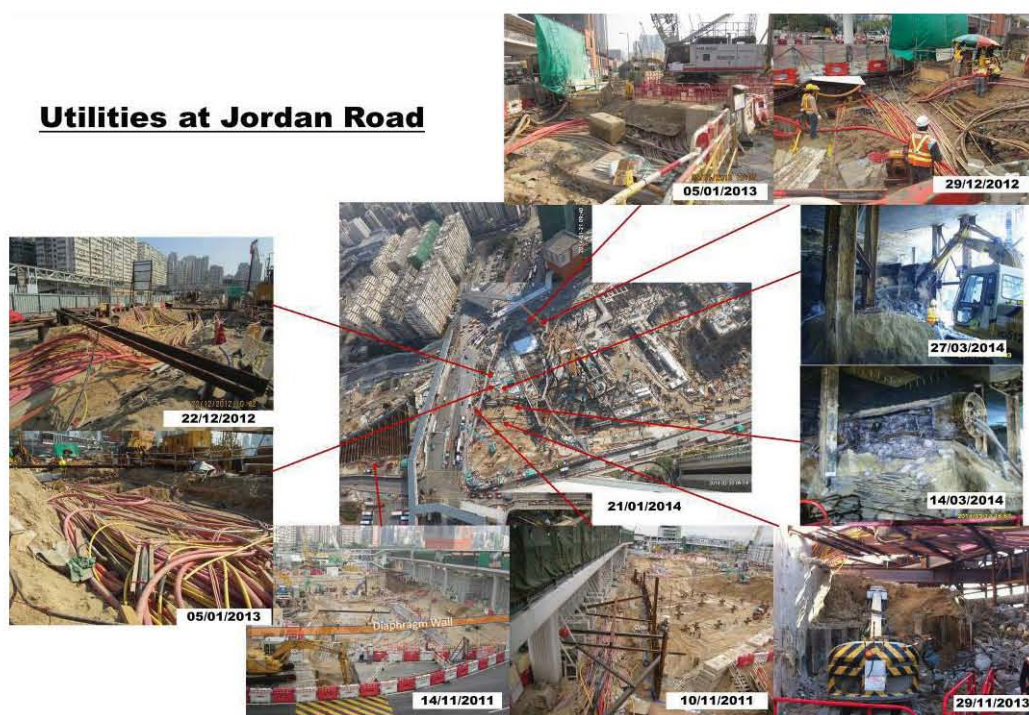
Express Rail Link

+ Northern Link

- 4.7 The Project programme presented at the January 2009 Board meeting of the Corporation indicated that the XRL trial run would be complete by August 2015.
- 4.8 On *20 October 2009*, the Chief Executive decided that the Corporation should be asked to proceed with the construction, testing and commissioning of the Hong Kong section of the XRL on the understanding that the Corporation would be invited to undertake the operation of the Hong Kong section of the XRL under the concession approach. On *16 January 2010*, the Finance Committee of LegCo approved the funding for the construction of the railway (HK\$55.0175 billion) and non-railway works (HK\$11.8 billion) of the XRL, amounting to a total of HK\$66.8 billion.

WKT site investigations 2008 to 2010

- 4.9 The IBC is aware that questions have been raised regarding the quality of site investigations performed prior to civil works commencing at WKT, and whether, if site investigations had been more comprehensive, some of the issues now causing delays to the Project could have been mitigated. The following section describes certain site investigations undertaken prior to the commencement of the civil works programme at WKT and is based on technical information provided to the IBC by the PjD.
- 4.10 Site investigation work at the WKT work site was carried out in phases between 2008 and 2010. Before and after site possession, the Corporation obtained information from over 600 drill holes covering all areas of the work site, with the exception of the former Jordan Road area. The drill holes used in that process were spaced on average 14.4m apart. This is in line with the relevant Government guidelines, and is also closer than the industry norm. However, due to the vertical formations of the bedrock at this site, even with closely spaced bore holes, it was possible to miss weak seams of rock or sub-surface boulders.
- 4.11 At the location of the former City Golf Club, prior to the Corporation taking possession of the premises, site investigation work was carried out at the pedestrian footpath and car parking areas of the Club. After taking possession, full site investigation work was conducted in the remaining areas of the Club. Some concerns have been noted regarding the volume of granite found within the WKT work site. The IBC understands that the volume of fresh bedrock that has yet to be excavated in the WKT north area is a known factor based on the



site investigation work. It is not expected that excavation work will be particularly challenging technically but time is required simply to excavate the volume of rock present.

- 4.12 Due to the heavy daily volume of traffic using the eight-lane Jordan Road, road closure for site investigation had not been pursued so as not to cause major traffic blockage. The ground condition under Jordan Road was not adequately documented until the road was moved from its original location after construction had started. It is for this reason that the ground conditions and extensive utilities (and how closely laid and intertwined these utilities were) under the Jordan Road could not be mapped prior to construction work commencing.

XRL construction programme 2010 to 2012

- 4.13 On 26 January 2010, Government and the Corporation entered into the Entrustment Agreement for construction, testing and commissioning of the XRL. As part of the Project, approximately 20 major (i.e. contract value exceeding HK\$50 million) civil contracts and 20 major E&M contracts were awarded.
- 4.14 The construction phase of the Project began in late January 2010. At the second PSC meeting, held on 28 April 2010, it was reported that the tunnel and E&M detailed design were on schedule, the piling and diaphragm wall works at WKT were gaining momentum and there was only a minor delay in civil works design and preparation of

tender documents. The XRL progress report presented at the April 2010 Board meeting indicated that the XRL would be ready for service in 2015, with an Estimated Handover Date of August 2015.

- 4.15 The Corporation reported one of the first possible Project delays to Government in May 2010 advising that the Mainland section of the cross-boundary tunnel would likely suffer a delay of approximately six months; however, mitigation measures were discussed with the Shenzhen authorities in order to ensure the commissioning of the Mainland section by mid-2015. In June 2010, Government reported to the RSC that the progress of tunnel works on the XRL in general was satisfactory without major difficulty, the foundation works of WKT were progressing on schedule and the detailed design of the terminus building was being finalised.
- 4.16 Since early on in the Project, however, specific work streams started to experience certain delays – namely, the tunnel works, construction of the cross-boundary section, the removal and re-provisioning of the Nam Cheong Property Foundation under contract 802 and the WKT approach tunnels as well as issues associated with the WKT station itself. These delays were reported to Government and the Corporation undertook certain mitigation measures. From 2010 to 2012, there was no change made to the planned opening date of August 2015. For example, the progress update given in the April 2012 Board meeting showed the XRL opening for service still in August 2015.
- 4.17 On *18 July 2012*, the CEO issued a letter to the STH, noting that the Corporation maintained its target to complete all works to enable the successful opening of the XRL in 2015 as planned, despite certain challenges, including completion of the connecting tunnels with the Shenzhen side, which, as of *18 July 2012*, was six months behind schedule.
- 4.18 By the end of 2012, WKT was experiencing considerable delays to its civil works, and there were delays to the tunnelling works in the Mainland section, which affected the progress of the Hong Kong section.

Increasing delays and Partial Opening: January to July 2013

- 4.19 At the PSC meeting on *25 January 2013*, the Corporation confirmed that as at the end of December 2012 overall physical progress on the XRL was 31.4% complete (against 46.1% planned). The DHy

enquired when the Corporation could advise on the overall Project master programme as well as DRMs planned for WKT, to which the Corporation responded that it was working on a presentation for the matter. However, the Corporation advised Government that slippage in the programme for excavating the WKT site should be caught up by mid-2013 and that it was further exploring measures to compress the works of contract 826 (the cross-boundary tunnels) and expediting other activities so as to absorb the delay in order to complete the works in 2015.

- 4.20 During his presentation on progress on all the Corporation's projects in the *5 February 2013* Audit Committee Meeting, the PjD noted that there were "*critical*" delays with the WKT construction and significant delays with the tunnelling works as well. However, he confirmed that good progress was still being made despite the challenges faced and discussed DRM initiatives.
- 4.21 Subsequently at the Board meeting on *7 March 2013*, the PjD confirmed to the Board that all projects were on target from both a cost and time perspective.
- 4.22 A similar commitment to the August 2015 goal was expressed in the PSC meeting on *22 March 2013*, when the Corporation stated that despite the slow progress of the tunnelling works in the Mainland section, most of the works would be completed by August 2015 for testing and commissioning. By the time of this PSC meeting the Corporation was reporting actual progress on the Project as 34.3% complete against 51.9% under the original programme.
- 4.23 One of the first internal suggestions to revise the opening date of the XRL was made by the Chief Programming Manager of the Project in an email (dated *27 March 2013*) to the PjD. In his email, the Chief Programming Manager urged that the completion date for the whole of the works be revised to the end of September 2015 with a revised XRL opening date of December 2015.
- 4.24 At the ExCom meeting on *11 April 2013*, the PjD gave a presentation on Project progress and its budget position. Members noted the presentations and agreed for the same to be presented at the April Board meeting.
- 4.25 At the Board meeting on *15 April 2013*, while slippages were acknowledged, there was no suggestion that the XRL would not open in 2015.

- 4.26 On *17 April 2013*, a workshop was held by the PjT with the contractor for contract 810A in WKT to analyse progress and measures to recover delays. In that meeting, the contractor put forward a revised construction completion date of June 2016 for the whole of the works. This revised completion date in 2016 was rejected, however, by the PjD, and the contractor was asked to work with the Project site team to identify solutions for achieving the original target opening of the XRL in 2015.
- 4.27 Whilst the PjT had first begun to consider a partial opening plan in March 2013 due to delays already experienced with the WKT contracts, it was after this meeting with the contractor for 810A that a Partial Opening scenario was worked on in earnest. This Partial Opening plan, which the PjT worked on throughout April to June 2013, assumed that only six long-haul tracks would be operational in WKT at Day 1 (as opposed to the originally proposed 10) with the tunnels fully operational. It was formulated and proposed as a solution for achieving the opening of the XRL in 2015 on a reduced project scope. Under the Partial Opening model, some external works (e.g. footbridges and subways) and the WKT roof structure would not be complete by the end of 2015, but it was thought that this would not affect the operation of passenger services.
- 4.28 The existence of the Partial Opening plan was largely confined to the PjT until it was revealed to the ExCom in a presentation in July 2013 (discussed later in this Part IV).
- 4.29 At the Board meeting on *25 April 2013*, the PjD reported that, despite some slippages in the programme (including delays in the WKT excavation work), all projects remained generally on target and, from a budget perspective, contingency balances were generally appropriate.
- 4.30 At the PSC meeting on *26 April 2013*, the Chairman of the PSC indicated that if there was a delay to the opening of the XRL, the HyD should be informed as soon as possible. The Corporation advised that a presentation on the revised programme for WKT would be given to the HyD in July. At that meeting, the Chairman also noted that due consideration should be given to striking a proper balance between the potential prolongation cost and the acceleration cost and that the justification for either approach would have to be substantiated.

- 4.31 By *30 April 2013*, actual against planned progress of the Project was reported by the Corporation to the PSC as 37.56% against 53.87%, respectively.
- 4.32 Rumours of a possible delay in the opening of the XRL leaked to the press in early May 2013 resulting in adverse press coverage. Government responded to the media based on information supplied by the Corporation that the XRL's opening remained scheduled for 2015.
- 4.33 On *23 May 2013*, a meeting was convened between the THB, DHy and Corporation to further review the latest position of the Project including the paper to be presented by Government to the RSC the following day.
- 4.34 On *24 May 2013*, Government submitted its sixth half-yearly report to the RSC at its meeting that day. The THB explained that delays such as those experienced in the Project programme were not uncommon and that the Corporation was exploring ways to catch up so that the completion date of 2015 would not be affected.
- 4.35 At the PSC meeting on *30 May 2013*, the Chairman of the PSC stated that if delays rendered the current target completion date for the Project unachievable, he should be informed as early as possible. The Corporation confirmed that it would do so and said that it would continue to keep monitoring the situation closely.
- 4.36 As regards the development of the Partial Opening plan, on *7 June 2013*, a presentation was made by the PjT to the PjD regarding the feasibility of the Partial Opening proposal. The general internal belief within the Corporation was that it would be possible to achieve an opening date of 2015 on a Partial Opening basis.
- 4.37 Following on from its work commenced at the end of March 2013, on *20 June*, the Corporation's Projects Programme team produced a SRA, based on data as of end April 2013, in which it was shown that opening of the XRL in 2015 could be achieved based on a Partial Opening model. Without the Partial Opening approach, the entire Project would not be expected to complete until September 2016.
- 4.38 At the *28 June 2013* PSC meeting, the Corporation reaffirmed its decision to implement a series of short and medium term mitigation measures to catch up the programme. At that meeting, progress on the Project as at the end of May 2013 was reported as 39.7%

complete against 61.8% under the original programme (an overall delay of six to seven months).

- 4.39 At the end of June 2013, the Corporation entered into discussions with WKT contractors and E&M experts as to the specifics of what the Partial Opening model would look like.

Developments in the Partial Opening proposal: July to 20 November 2013

- 4.40 At the beginning of July 2013, the Corporation commenced regular DRM meetings with the 810A contractor.
- 4.41 On Saturday *13 July 2013*, the July Presentation was given by the PjT to the CEO, DCEO, and FD, where it was reported that the Project completion cost was estimated to be HK\$65.1 billion and that a 2015 opening could be achieved but on the Partial Opening model. The July Presentation proposed that the target opening would be not August 2015 but December 2015, and a request was made to confirm this change of completion date.
- 4.42 The focus at the meeting on *13 July* was, the IBC understands, on achieving the Project goals that had been agreed with Government. The progress of the tunnelling sections was discussed, in relation to which the PjT indicated that excavation would be 100% complete by September 2014 and that all sections would be handed over to E&M works by March 2015. The PjT also indicated that the trains would be delivered by December 2014 and the stabling yards would be ready. All of this was consistent with the start of passenger operations at the end of 2015.
- 4.43 In relation to WKT, however, the PjT described significant delays in some of the works. The PjT spoke about DRMs and how they were prioritising critical plant rooms and track access for Day-1 operations. Day-1 operations would include six long-haul tracks in the centre of WKT, railway facilities and station entrances, CIQ and Government areas, the taxi lay-by, the Public Transport Interchange and pedestrian connections to Kowloon Station and Austin Station at ground level. The PjT had informally begun to refer to the changes to the individual components of the Project that would still achieve the overall goal as MOR. However, at this stage MOR was described in just one slide in an approximately 20 slide presentation pack showing how works could be prioritised.

- 4.44 The attraction of Partial Opening to those presenting it from the PjT, and to those members of the ExCom to whom it was proposed, was that it allowed the Corporation to provide a passenger service that would still be able to meet the Day-1 Operational Requirements that had been agreed with Government. As described above, it had long been agreed (since at least 2010) that only 10 of the 15 tracks would be completed for Day-1 Operations, with additional tracks being built later (post 2021, depending on actual patronage of the railway).
- 4.45 The IBC understands that the OD had confirmed that a six track operation would still be acceptable to meet the train service requirements and patronage forecast¹. There would, however, still be ongoing works after the start of passenger services, including parts of the facility and non-essential works such as footbridges.
- 4.46 The PjD's presentation also highlighted the shortage of labour as one of the key challenges affecting the Corporation's ability to meet the Project programme.
- 4.47 At a briefing to the THB on construction progress given on *23 July 2013*, the Corporation advised Government that the target for revenue service of the XRL would be December 2015. The THB reminded the Corporation to use its best endeavours to deliver the Project on time and within budget.
- 4.48 At the ExCom meeting on *25 July 2013*, the PjD highlighted that, under the Project Cost Report for June 2013, the Project exceeded its budget projection at the relevant time. He mentioned that an update on the Project would be given to the ExCom in August, followed by a paper to the RDO. The DCEO was in the chair for this meeting (in the CEO's absence). No reference appears to have been made at this meeting to Partial Opening or the meeting on *13 July*.
- 4.49 At the ExCom meeting the following week on *31 July 2013* (chaired by the DCEO in the CEO's absence), the PjD reported that the shortage of workers remained a serious concern for the Corporation's various ongoing projects and that the Project continued to experience challenges, but so far its costs had stayed within budget and the

¹ The six long-haul tracks would be completed first, so, in the view of the PjT, there would be no difficulty in running long-haul and short-haul trains from the same set of tracks.

target opening date should still be met. The apparent contradiction between this report regarding budget projection and the PjD's report the previous week appears not to have been commented upon.

- 4.50 At the Audit Committee meeting on *14 August 2013* the PjD reported that the Project was on time and on budget although there would still be multiple challenges to overcome and DRMs to be undertaken.
- 4.51 It appears that Government was first formally notified about the Partial Opening plan on *20 August 2013*, when the Corporation proposed to the RDO and the HyD the partial opening of the XRL (under the Partial Opening model) by the end of 2015 with six long-haul platforms in service. The remaining external works would be completed in mid-2016.
- 4.52 In his presentation to the Board meeting on *22 August 2013*, the PjD said that he believed that there was a programme in place to complete the key elements of the Project for opening in 2015 and within the budget set, although some non-essential works may have to be completed at a later date. He explained that various measures had also been adopted to control costs and manage the programme, including: awarding contracts on a fixed price basis and ensuring that all contracts had on average 80% of their labour requirements. There was, however, no mention of Partial Opening by the PjD or any other of those who was present at this Board meeting and had been at the *13 July* meeting.
- 4.53 At the same meeting one of the independent non-executive directors² stressed the importance of good project management so that any issues could be identified and reported to Government at the right opportunity, especially in light of the fact that any additional funding would require LegCo approval. There appears to have been no reaction to this observation by the PjD or anyone else present at the meeting who was at the *13 July 2013* meeting.
- 4.54 At the *29 August 2013* PSC meeting, the Chairman expressed concerns about the difference between the actual progress and

² Mr. Abraham Shek

planned progress of the Project, especially the progress of the WKT works.

- 4.55 At an ExCom meeting on the same day, the General Manager-XRL Tunnels presented a report headed “Projects Progress Reports for July 2013”. In that report it was stated that labour shortages were an issue common to all five of the Corporation’s on-going projects. On average there was a 20% shortfall across all contracts.
- 4.56 On *13 September 2013*, a presentation (the content of which was again largely the same as the July Presentation) was given by the Chief Programming Engineer to the DHy and the RDO, putting forward the Partial Opening model in greater detail with the XRL opening date set at December 2015. The RDO was very concerned about the incomplete works under the Partial Opening model, but the Corporation did not receive any explicit objection. The HyD, without indicating agreement to the Partial Opening proposal, requested that the Corporation provide further information such that a report could be made to the THB.
- 4.57 Notwithstanding the PjD’s commitment at the ExCom meeting on *25 July* to update the ExCom on the Project in August, it was in fact on *19 September 2013* that the PjT made a presentation to the ExCom (chaired by the DCEO rather than the CEO, who was away) on the Project programme and projected outturn cost. The presentation included a description of the Partial Opening model including reference to a target opening date in December 2015 with cost estimated at HK\$65.1 billion. The same slides were used to summarise the programme status and key challenges as had been shown to Government on *13 September 2013*.
- 4.58 In their presentation, the PjT explained that there were irrecoverable delays in contracts 810A, 810B and 811B which would prevent completion of works in May 2015 as originally planned. Opening on a Partial Opening basis would be achievable by December 2015. The programme progress and timelines were based on the assumption that key challenges identified would be mitigated with improved productivity and efficiency. In the absence of an improvement in productivity, the PjT warned that further delays would be expected.
- 4.59 The Corporation’s Corporate Relations Department was asked at the meeting, as preparatory work, to look into the “*line to take*” taking into account the latest status of the Project and briefing provided by

the PjT. This item does not appear to have been logged on the register of matters arising and followed up on by the DCEO in subsequent meetings (or elsewhere).

- 4.60 During this period of July to October 2013, the delays in the Project became steadily worse. In an email exchange between the PjD and the Chief Programming Manager on *11 October 2013*, the PjD stated his concern that the opening of the XRL by the end of 2015 was reaching a point of “*near impossibility*”. The PjD met the CEO that same day for one of their regular monthly meetings, but made no mention to the CEO of a similar concern about the effect of delays.
- 4.61 The IBC understands that on *22 October 2013* the HyD reported to the STH that there were delays in the cross-boundary tunnelling works and that the Corporation had proposed a Partial Opening plan to achieve Day-1 opening in 2015 using six tracks by end-2015 and 10 tracks by mid-2016. It was also explained to the STH that WKT and the cross-boundary tunnel section were on the critical path of the Project and any further delays at either of these might affect the target commissioning date of the Project. In view of these latest developments, the THB requested the Corporation and the HyD to provide a detailed briefing on the latest progress of the Project.
- 4.62 When presenting his Project Progress Report for September 2013 at the ExCom meeting on *24 October 2013*, it was highlighted by the PjD that, in relation to the Project, critical delays were occurring in contracts 810A, 810B, 811B and the Mainland section. According to the latest forecast, the first TBM from the Mainland side of the boundary would only reach the boundary at Shenzhen by the end of November, which had a significant impact on the overall timetable for completing the Project by 2015. It was also noted by the PjD that the THB had been made aware of the delay and that a further briefing would be given to the THB to brief them on the latest progress. On the WKT recovery plan, it was reported that there were still issues due to unforeseen complications.
- 4.63 The Corporation had begun discussions with the WKT contractors and the E&M experts in relation to what Partial Opening would contain at the end of July 2013. Between July and October 2013, the Corporation’s on-site team (together with the E&M team) had been working to ascertain what the critical parts of the WKT construction programme were in order to decide what Partial Opening may or may not contain. It was in October that the Corporation gave the contractors the E&M mark-ups and a set of drawings which showed

which footbridges and other facilities were needed for Day-1 opening on a Partial Opening basis. The contractors were asked to come up with a plan to deliver on that basis. The contractors delivered that proposal informally on *19 February 2014* and formally on *31 March 2014* (see below).

- 4.64 At the PSC meeting on *29 October 2013*, it was reported by the Corporation that the difference between actual and planned progress on the Project as at the end of September had reached approximately 25%. The Corporation reported that there was an overall delay in the Project of about nine months in general and an 11-month delay in the cross-boundary tunnelling works. The Chairman of the PSC also expressed a concern at the meeting that the forecast expenditure for the remaining months of the 2013/2014 financial year was still low, suggesting no improvement in progress of the Project works.
- 4.65 During October the Projects Programme team had updated the SRA which they had first produced in June. This showed the situation at 826 was deteriorating and would not meet the December 2015 deadline for opening (with Partial Opening) because the Mainland section was three months late reaching Hong Kong. The SRA also showed that the situation at 810A had deteriorated significantly since March 2013.
- 4.66 On *7 November*, the PjD wrote to the General Managers in the PjT: *“The figures and achievement by each contract remain a serious concern. I am sure you have a plan or a DRM or two to secure the recovery to what we have committed in July to CEO of our Minimum Operating Requirement for Day-1 operation by December 2015. If we are now in serious doubt about this commitment, I want to be sure that we have a plan to first inform of Board and Executive ASAP...”*.
- 4.67 On *8 November 2013*, the PjD and other representatives from the Corporation met with the PST and the DST, as well as the DHy and the RDO. The delays experienced in relation to contract 826 were discussed in detail. The completion of the tunnelling, track and E&M works for dynamic testing at 826 was projected for late 2015 which, together with nine months testing, would push the opening date for the Project into early 2016 (assuming no DRMs).
- 4.68 The PjT also gave another presentation on Partial Opening at this meeting. This presentation was substantially similar to the July Presentation and the *13 September 2013* presentation (without any update relating to contractual work done since April). During this

presentation, the PjT gave more detail about Partial Opening, in particular the readiness of WKT for opening in December 2015, and the facilities that would have been constructed or may still be under construction at the proposed December 2015 opening date.

- 4.69 The THB raised the concern that if the testing of the XRL could only commence in October 2015, it was unlikely that the XRL would start operations by the end of 2015. If that was the case, Government felt that the public should be informed as soon as possible, including LegCo at the forthcoming RSC meeting on *22 November 2013*.
- 4.70 The THB's concerns about the programme for opening and what to report to LegCo appear not to have been communicated outside the PjT at this time.
- 4.71 By *11 November*, the PjD appears to have become increasingly concerned: *"Further to my email [of 7 November as referred to above], I have had a number occasions trying to come to some clearer understanding with all the progress and challenges associated with XRL [sic]. But I have totally failed. We have presented to our CEO and Executives in July indicating that we can make December 2015. A similar presentation was given to Perm Sec (Transport) last Friday. As you know, many of our planned target and production rate have failed to materialise and if anything, the pressure on our cost/contingency is increasing..."*.
- 4.72 On *14 November 2013*, a memorandum from the Chief Programming Manager to the PjD confirmed that the programme would be delayed likely to until about April to May 2016, even operating on a Partial Opening basis. In his cover email, the Chief Programming Manager stated: *"We need a major turnaround of events on 810A to Open to Public MOR in mid 2016 and complete all external works within a 2016 timeframe."*
- 4.73 On *19 November 2013*, the Projects Programme team produced a second SRA on the tunnel programme. This SRA contained the October 2013 update to the first SRA and had been updated to November. The SRA showed further slippages to the northern tunnel contract areas. Contracts 826 and 810A were seen as critical.
- 4.74 The STH was briefed by the HyD on *20 November 2013* about the possibility that the XRL might only commence passenger operations after 2015 due to the delays in the cross-boundary tunnelling.

- 4.75 Based on the assessment of works progress given by the Corporation on *8 November*, and following the briefing to the STH on *20 November*, the THB contemplated making the potential delays public at the RSC meeting scheduled for *22 November 2013*. The THB apparently proposed to explain that the XRL might only commence operation after 2015 and the latest construction progress and the actual challenges encountered.
- 4.76 At no time, however, was the July Presentation or the changes proposed under the Partial Opening plan presented to or discussed with the full Board. It has been explained to the IBC by members of the ExCom who have been interviewed that it was rare for project adjustments (which was apparently how the ExCom viewed the Partial Opening plan) to go to the full Board unless the changes were material.
- 4.77 Each of the ExCom members interviewed by the IBC accepts that with the benefit of hindsight, the changes proposed under the Partial Opening plan should have gone to the Board. It has been suggested variously by them that this could have been an outcome of the meeting on *13 July 2013* or more likely the meeting on *19 September 2013* when the full ExCom considered the Partial Opening plan. It was normal practice of the ExCom collectively to consider and decide whether an item should go to the Board, but this appears not to have been the case following the discussion of the Partial Opening plan at the September meeting.

Nearing impossibility: 21 November 2013 to 30 March 2014

- 4.78 When the CEO was told that the THB contemplated making public (at the RSC meeting to be held on *22 November 2013*) the possible delays and that the XRL might only commence operation after 2015, he telephoned the STH to express disagreement with this proposed statement. The CEO explained the Corporation's concern that any announcement would mean leverage that the Corporation previously had to force the contractors to work to the timetable might be lost. The CEO had confirmed at that time with the PjD and the OPD that the railway would be operational before the end of 2015. The OPD confirmed to the CEO that it would be if he had access to the tracks by the end of September 2015. The PjD confirmed the railway would be operational before the end of 2015 based on the Partial Opening plan and, if there was still delay in the cross-boundary tunnelling, it would be possible to finish just one tunnel and operate

with one tunnel on an interim period running trains on a bi-directional basis³.

- 4.79 The STH did not accept the CEO's statements regarding completion in the telephone call and called for an urgent meeting between the Corporation and PST and HyD to clarify the position as Government believed the public must be informed if the railway would not commence operations until after 2015.
- 4.80 Later that day, in the evening, a meeting was held between the THB and the HyD with the CEO, PjD, OPD, General Manager – XRL and the Deputy General Manager - Corporate Relations. During that meeting the THB enquired how the Corporation could remain of the view that the Project would be completed and commissioned in 2015. The Corporation apparently confirmed that it was working hard to identify solutions to meet this target and that at the very least, single track bi-directional operations should be possible in the cross-boundary section of the tunnels. The THB stated that such single track operation did not comply with Government's requirements and was therefore unacceptable.
- 4.81 The THB was concerned that based on the Corporation's information, the Project would only be ready for testing in October 2015 and asked whether the XRL could be commissioned in time within 2015. The THB apparently cautioned the Corporation not to over-state its ability to overcome the challenges. Government needed a realistic assessment and should alert the public immediately if the target was not achievable. The PjD then stated that without the single track option the Corporation would look to recover the delays in other ways (i.e. by bringing in an extra TBM). While he was confident that this could be achieved over the next two years, he stated that the Corporation would be able to give a better view of progress in six months time after the tunnelling works had commenced on the Hong Kong side.

³ The tunnels and signalling systems on XRL are designed to support bi-directional running (i.e. trains running in both directions on the same stretch of track) over relatively short sections of tunnel. These systems are to provide for the event of an incident involving a section of one of the tracks becoming blocked or non-operational. Along the length of the tracks there are regular points of egress to allow trains to cross from one track (tunnel) to the other to avoid non-functioning track sections.

- 4.82 Eventually a consensus was reached that whilst the target of 2015 should be maintained at that stage, Government and the Corporation should be upfront with the challenges faced by the Project when attending the RSC meeting the following day. Meanwhile, Government requested that the Corporation provide it with a clear roadmap on how the 2015 target could be met.
- 4.83 On 22 November 2013, Government reported at the RSC meeting that construction of the XRL was expected to be completed in 2015 as scheduled, and that it would take generally six to nine months for testing and commissioning (Government did not mention the revised Partial Opening plan to LegCo, explaining later that it never agreed to such an arrangement).
- 4.84 At the PSC meeting held on 29 November 2013, the Corporation reported that there was an overall delay of nine and a half months to the Project programme, with the WKT works and the works on the cross-boundary section and 823A (Tse Uk Tsuen to Tai Kong Po) tunnels being most critical. In response to questions from Government, the PjT confirmed that the target date for completing all civil works and E&M works by June 2015 to be ready for testing and commissioning was achievable.
- 4.85 The Chairman of the PSC reminded the Corporation at that meeting to ensure that the Project would be delivered within the approved budget. The Chairman also requested that the Corporation especially monitor and improve progress with the works at the 823A tunnels. Picking up the theme from the meeting with the Corporation of the previous week, the HyD meanwhile requested the Corporation to provide a more detailed roadmap for achieving targeted opening in 2015 including critical milestones under individual contracts.
- 4.86 The Corporation agreed to provide the PSC with more details on the proposed opening arrangements for the Project, including the extent of the readiness of the external works at WKT and public areas. The Corporation confirmed that, with respect to the delay to the WKT works, it was exploring mitigation measures for the achievement of Partial Opening. Similarly, measures were being identified to recover the delays to the tunnelling works.
- 4.87 In an email sent on 6 December 2013, shortly before the PjD was due to meet the Labour Department (with the RDO), the Chief Programming Manager expressed his concerns about labour shortages: “*The major issues remain: (1) Age of workers and hence*

consequential lack of productivity; (2) Lack of frontline supervision; (3) Lack of new blood or continuous inflow of workers to maintain a core of experienced workers; and (4) Lack of skilled workers, general labour used for skilled trades.”

- 4.88 Despite concerns such as this from the PjT, the PjD’s optimism that the Project would be ready to open on a Partial Opening basis by the end of 2015 appears to have been undiminished.
- 4.89 At the Board meeting on *10 December 2013*, the STH mentioned that the actual opening date of the Project would depend on the completion date of the construction works, given the six-month period required for testing and commissioning. The PjD gave his Half Yearly Update of New Railway Projects presentation which included an update on progress of the Project. He made a general statement that project works were managed with necessary mitigations, coupled with recovery plans in case of programme delay.
- 4.90 The Board asked questions surrounding the budget (covering management of claims) and completion was also discussed. In response to a direct question from an independent non-executive director, the PjD confirmed that the Project would be completed by the end of 2015. Again, none of the other members of the ExCom present or anyone else present and with knowledge of the Partial Opening plan challenged or raised a question regarding this statement by the PjD. Another independent non-executive director⁴, on the back of this dialogue, stressed the importance of keeping LegCo informed of developments which could have an impact on the budget for the Project.
- 4.91 However, on *19 December 2013*, the Chief Programming Manager sent an updated SRA report to the General Manager of the Project, copying the PjD stating that WKT could no longer be open within 2015 even on a Partial Opening basis and suggesting that the opening date would be May 2016. By the end of December 2013, the XRL actual progress against planned on the Project was 51.34% vs. 81.41%.

⁴ Mr. Abraham Shek

- 4.92 In the RDO/HyD co-ordination meetings held in January and February 2014, the Corporation maintained that the Project was still targeted for completion in 2015.
- 4.93 On 15 January 2014, the CEO requested the PjD to provide a comprehensive review of the Project. This was six months after the comprehensive review in July 2013. It was later agreed to take place in mid-April as the PjD felt that he would be better able to update the ExCom with comprehensive information at that time.
- 4.94 At the ExCom meeting on 23 January 2014, the PjD noted that he would give a briefing on the Project programme and cost position of the Project to the ExCom in mid-April 2014. The CEO reminded him during the meeting of the need to engage the THB at an early stage so as to ensure advance notice in keeping the THB abreast of any developments in the programme.
- 4.95 Similarly at the PSC meeting on 24 January 2014, when the DHy expressed his continued concerns about the significant programme slippage for the Project, the Corporation said that it would present the latest forecast opening arrangements and commissioning timeframe to the DHy in April 2014.
- 4.96 On 19 February 2014, the PjT received an informal (and not yet complete) response from the contractor for contract 810A in relation to the Partial Opening proposal which the Corporation had submitted to the contractor in October 2013. The response indicated, albeit on an informal basis, that according to the contractor's calculations, even with the Corporation's proposed Partial Opening, there would be no track access until June 2016.
- 4.97 At the PSC meeting on 28 February 2014 the Corporation informed the PSC that it had been working closely with contractors on measures to catch up with the construction programme.
- 4.98 The M&V Consultant's monthly report for February 2014 indicated their satisfaction that the Corporation was "*taking due cognisance of its obligations in relation to safety, quality, environmental, programme and cost management*", but the report said that the target date was "*looking very challenging*" given accruing delays in contracts 823A and 826. The M&V Consultant also referred to the updated Project programme which it was expecting the Corporation to produce, now in May 2014.

- 4.99 The opening date was further pushed back to mid-2017 in a programme status presentation given by the PjT to the PjD on *7 March 2014*; the slides in this presentation discussed the overall programme outlook and set January 2017 as the month for completion of railway works and April 2017 for revenue operation.
- 4.100 However, on *18 March 2014* at the RDO/HyD co-ordination meeting, it was reported (although the minutes do not expressly state by whom) that “*the project is targeted for completion in year 2015*”.
- 4.101 At the ExCom meeting on *27 March*, the PjD reported that contracts 826, 823A and 810A remained major concerns. A detailed briefing would be given to members of the ExCom on *12 April 2014*.
- 4.102 Two events at the end of March 2014 appear to have precipitated a fundamental change in the view of the PjT, and the PjD in particular, as to the achievability of the Project opening to passenger services by the end of 2015. The first was the black rain storm on the night of *30 March*, and its consequences, and the second was a formal presentation by the 810A contractor on *31 March* regarding progress with and the programme for the WKT construction. These events appear to have brought home forcibly for the PjD and perhaps others on the PjT that a 2015 opening date was simply not possible under a Partial Opening scenario or otherwise.
- 4.103 The events of *30 and 31 March 2014* are described at paragraphs 4.111 to 4.119 below; however, to put them in context it is helpful first to summarise the status of the Project as at the morning of *30 March*.

Summary of delay position prior to 30 March 2014

- 4.104 This section of the report summarises the major delays encountered in the Project prior to *30 March 2014* (the date of the flooding of the tunnel in contract area 823A as described below). The summary is based on information prepared by the PjT and submitted to the IBC. Its technical accuracy has not been independently verified by the IBC⁵.

⁵ The delays described here and elsewhere in this report are described without prejudice to any of the Corporation's legal or contractual rights in respect of the Project.

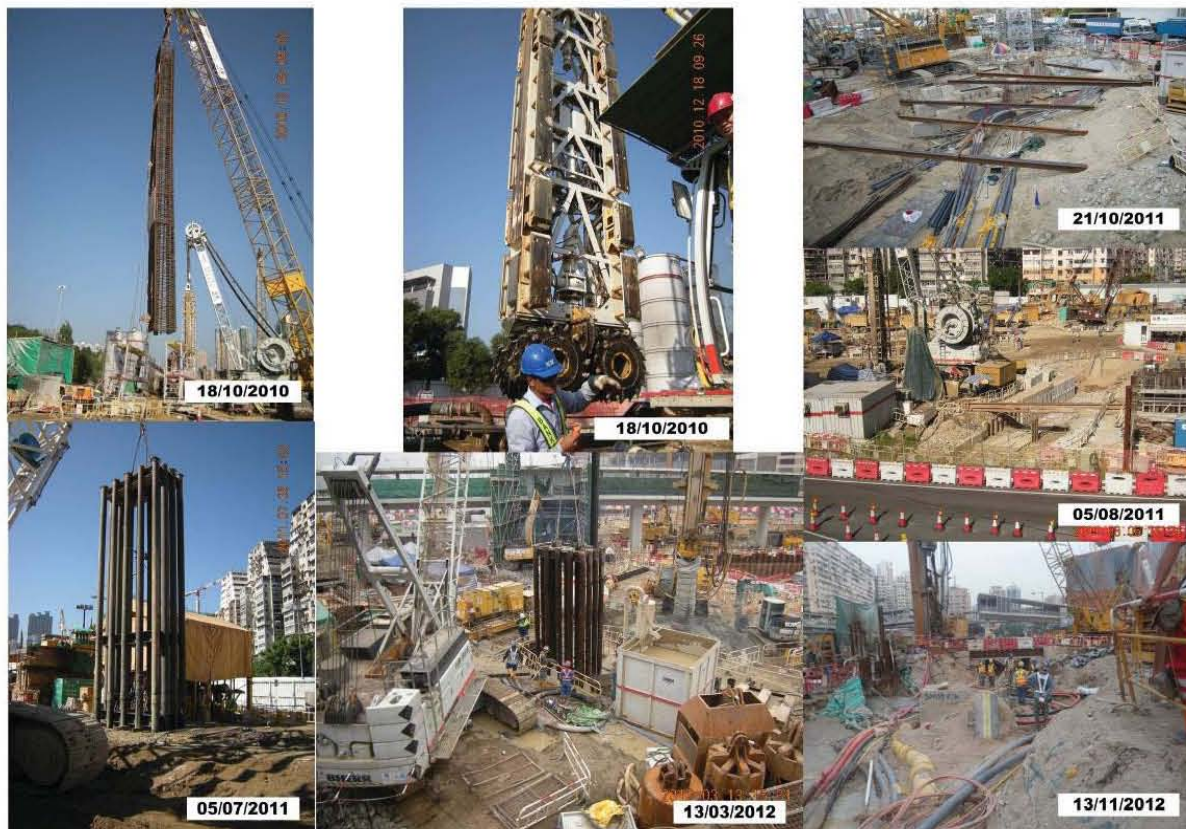
4.105 As at 30 March 2014, there were already significant delays to many of the individual contracts; however, the PJT has identified contracts 810A, 823A and 826 as being the contracts where the delays by that date were already so substantial that they were seen as critical to completion of the Project by the end of 2015.

West Kowloon Terminus

4.106 The four civil construction works contracts for the West Kowloon Terminus, namely: contract 811A - West Kowloon Terminus Approach Tunnel (North); contract 811B - West Kowloon Terminus Approach Tunnels (South); contract 810A - West Kowloon Terminus Station (North) and contract 810B - West Kowloon Terminus Station (South), had all been affected by a number of delay events some of which have been critical to the Project programme path:

- (A) the two advanced works foundation contracts 803A and 803D in the 810A station (north) and 810B station (south) areas encountered unforeseen ground conditions prolonging the construction of the external station box diaphragm wall. This affected the contract award dates for the two main station contracts: 810A and 810B;
- (B) in the 810B station (south) area a number of design changes were incorporated to facilitate WKCD's latest design. Despite the site investigations that had been performed, unforeseen ground conditions (weak seams, the presence of large cobbles, boulders and artificial obstructions) together with late utility diversions also affected the progress of the works. These caused a knock-on effect to the critical 810A station (north) area, in particular the centre core station structure and the roof, in the order of 11 months;
- (C) in the 811A and 811B approach tunnel area and in particular 811B, significant delays due to late utility diversions, measures to overcome complex utility arrangements and more unforeseen ground conditions (namely higher than anticipated rock levels, weak seams and the presence of large boulders) prolonged the construction of the diaphragm wall in three key areas that were required to be constructed sequentially; to the north of Jordan Road and then within the area bounded by

Diaphragm Wall Rock Removal Equipment around Existing Utilities



Jordan Road after the road had been diverted. These delays had a knock on effect to the 810A station (north) top-down area directly affecting one of the Project's critical paths (leading to track access and testing and commissioning), in the order of 15 months; and

- (D) 810A was further delayed by the issues related to the quality of the steel couplers⁶, unexpected movement of the west diaphragm wall, unforeseen ground conditions, design changes and issues related to the quality of roof steelwork fabrication and the interdependencies between the temporary and permanent structural designs. These latter three issues caused significant delay to the roof construction.

⁶ Couplers are used to couple two steel reinforcement sections before pouring concrete into the structure.

4.107 Throughout the construction of WKT there has been a shortfall of skilled labour and frontline supervision. This together with the inability to achieve planned production rates across the terminus has also contributed to the overall delay.

Tunnel contracts

4.108 All eight of the major tunnel contracts for the Project, namely: contract 820 - Mei Lai Road to Hoi Ting Road Tunnels; contract 821 - Mei Lai Road to Shek Yam Tunnels; contract 822 - Shek Yam to Pat Heung Tunnels; contract 823A - Tse Uk Tsuen to Tai Kong Po Tunnels; contract 823B - Shek Kong Stabling Sidings and Emergency Rescue Sidings; contract 824 - Tai Kong Po to Ngau Tam Mei Tunnels; contract 825 - Ngau Tam Mei to Mai Po Tunnels and contract 826 - Huanggang to Mai Po Tunnels, have been affected by a number of delay events some of which have been critical to the Project programme path:

- (A) all eight tunnel contracts have been affected by unforeseen ground conditions (higher than anticipated rock head levels, high water inflows, presence of cobbles and boulders and the presence of underground steel obstructions, etc). The delay to each contract as a result of unforeseen ground conditions varies up to 12 months;
- (B) the late arrival of both TBMs from the Mainland has substantially delayed the commencement of the Hong Kong section of contract 826 by up to 15 months thus making contract 826 one of the three critical contracts currently affecting the Project completion;
- (C) even before *30 March 2014*, contract 823A had been delayed by late land possession at Choi Yuen Tsuen, unforeseen ground conditions as mentioned above, breakdown and frequent repairs of both TBMs and an inability to achieve planned production rates; and

- (D) with the exception of contracts 820 and 821, all tunnel contracts have been unable to achieve the overall planned production rates which has been one of the major causes of delay to the Project.

4.109 As with WKT there has also been a significant shortfall of skilled labour and frontline supervision which has contributed to the overall delay.

Tunnel advance works

4.110 The advance works, contract 802 - Nam Cheong Property Foundation Removal and Re-provisioning, have been delayed 21 months by the unforeseen condition of the existing steel H-piles which were severely bent making their removal far more complicated.

Events at contract 823A on 30 March 2014

4.111 On the night of *30 March 2014*, a black rainstorm of exceptional intensity led to serious flooding at the Yuen Long tunnel, causing damage to the TBM at the north down-track tunnel of contract 823A and resulting in tunnel blockage and delay. The source of the flood water was a section of cut-and-cover tunnel about 850m south of the flooded TBM along the tunnel alignment in the adjacent contract 823B. The cut-and-cover tunnel in contract 823B is connected to the contract 823A TBM tunnel.

TBM at contract 823A



Damaged TBM at contract 823A



- 4.112 Even for a black rain storm, the rainfall on the night of *30 March* was exceptionally heavy (one in 200 years). It washed a large amount of debris and fallen vegetation away from the area adjacent to the contract 823B construction site, blocking a surface drainage channel at the top of a temporary cut slope of approximately 4m high, causing the water to spill over to the side of this cut slope. The slope was then eroded causing it to fail partially.
- 4.113 The spoil and debris from the partially failed slope then blocked the temporary drainage inlet of a nearby newly constructed box culvert. As a result, the flood water accumulated at the ground surface, then overflowed and damaged the earth bund (flood) barrier intended to guide the ground surface water away from the section of the cut-and-cover tunnel to prevent it from being flooded. The top part of this section of the cut-and-cover tunnel had been trimmed down to connect to the Shek Kong Plant Building South (SPS) which was under construction at the time.
- 4.114 The overspill water continued to flood into the cut-and-cover tunnel in contract area 823B and then flowed into the connected 823A north down-track tunnel, which has a downward gradient towards the tunnel face, eventually flooding the whole TBM at that location. At their height the floodwaters were as much as 9m deep at the TBM face.
- 4.115 The surface of the failed temporary cut slope in contract area 823B had been protected by a combination of grass seeding and shotcrete. The slope had been in place since 2011 and had performed well in the past under heavy rainfall conditions. The surface drain at the top of the cut slope was a shotcreted channel. A pre "wet season" inspection was carried out and had confirmed that its condition was good.

4.116 To prevent any similar flood happening again, the temporary cut slope was immediately stabilised by placing large concrete blocks at the failed location, and the slope surface was fully shotcreted. Inspections of all other slopes adjacent to the open top section of the cut-and-cover tunnel alignment were also carried out promptly after the incident to ensure that they were all sound and sufficiently robust to prevent possible erosion from heavy rainfall.



Flooded TBM tunnel

4.117 Similar black rain storm conditions have been experienced since the incident on *30 March 2014*. The IBC understands that the flood prevention measures now in place have proven to be effective.

4.118 The IBC understands that the combination of the flooding incident and other delay events on contract 823A mean that overall this contract has been delayed by approximately 18 months.

Delay to 2017 confirmed: 31 March to 16 April 2014

4.119 On 31 March 2014, the 810A contractor gave a presentation to the Corporation in relation to the Partial Opening proposal, showing that access for track laying would not be available in December 2015 and through 2016, and that completion of 810A's scope of work would only take place in 2017. On this basis, the critical path on which Partial Opening had relied to be able to begin passenger services on 2015 was no longer relevant. The PjD indicated that the entire Project completion schedule should be re-assessed ignoring Partial Opening.

4.120 Yet at both the Board meeting on *7 April* and the ExCom meeting on *9 April 2014*, there appears to have been no mention of the XRL or the Project status. The information provided to the PjD at the meeting with the 810A Contractor on *31 March 2014* had not been communicated to the Board or the ExCom.

- 4.121 On *12 April 2014*, the PjT gave a briefing to the ExCom on the latest programme status for the Project and for the first time notified the members of the ExCom that the overall schedule for completion would indeed be delayed to 2017.
- 4.122 In the last comprehensive review, which was conducted on *13 July 2013*, all tunnel excavation was projected to be completed by September 2014 and all sections were projected to achieve Degree-1⁷ completion by March 2015. This included contract 826, where the TBM was arriving from the Mainland.
- 4.123 The April Presentation updated the forecast for the tunnelling contracts. According to the April Presentation, delays were occurring in contract 826 and contract 823A, which was tunnelling from Tai Kong Po to Tse Uk Tsuen. Contract 823A was also by then considered to be more critical.
- 4.124 The PjT explained to the ExCom that as a result of the flooding in 823A in the black rainstorm on *30 March 2014*, the TBM in the north down-tunnel was badly damaged and all tunnelling in that tunnel had stopped. Investigation by the contractor over the previous two weeks since the storm indicated that significant repair work would be required to the mechanical and electronic components of the TBM.
- 4.125 The June 2013 Forecast indicated that the 823A North Up-Track Tunnel excavation would be completed by March 2014. The February 2014 Forecast for the same work (before the flooding incident) indicated that completion would be delayed by 15 months to June 2015. The flooding incident only made this situation worse as it was anticipated that it could take up to nine months to restart the TBM.
- 4.126 Serious delays had also been encountered in WKT. Critical E&M plant rooms had not been handed over to the E&M contractor by the

⁷ Degree-1 completion refers to the handover of station or building areas from civil works to E&M works and tunnels from civil works to trackwork. At Degree-1 completion all civil works (concreting and wet trades like plastering, painting and floor screeding) should effectively be ready for commencement of E&M works or trackwork as relevant. Degree-1 completion will not include work items such as floor tiling, walls and ceilings which are part of the civil scope of works carried out subsequently.

end of 2013 as anticipated and further delays were expected. Similar delays were also affecting the handover of track areas to Permanent Way. Actual progress was well behind what was required to be able to initiate passenger services in December 2015 to meet the Day-1 operating requirement.

- 4.127 The IBC has been told that it was only at this point that the ExCom (except for the PjD) learned how severe the cumulative effect of the delays to the Project was even before the flooding incident. With the delays that had occurred in the tunnel sections and WKT, it was readily apparent that it would not be possible to initiate service in 2015. Moreover, given the critical areas of contract 810A for WKT completion, and the fact that the 823A tunnel section was now on the critical path, it was no longer feasible to work to a programme to meet the Day-1 operating requirement by December 2015 and finish non-essential works after passenger service had started.
- 4.128 The programme now proposed by the PjT showed that works could be completed and passenger service initiated by October 2017. The ExCom discussed the basis of that forecast with the PjT. On the one hand, it was certainly preferable to initiate passenger services, if possible, in 2016. That would have been broadly consistent with the response to questions provided by the Under STH at the LegCo meeting in November 2013. On the other hand, the ExCom felt that the Corporation should not commit to a revised schedule that it would not be able to achieve. The thinking was, as explained to the IBC, that explaining delays once would be difficult, but doing it multiple times would be much more problematic.
- 4.129 During the course of the discussions on *12 April*, the IBC was told that many questions were raised by the members of the ExCom, including:
- (A) whether there were ways to pull the programme forward;
 - (B) whether a variation of the Partial Opening plan could be developed to concentrate on critical areas and start passenger services even if all works were not fully completed;
 - (C) how confident the PjT was that the damaged TBM in the 823A contract area could be re-started and what would happen if it could not be;

- (D) how the Corporation would assess the assumed rate of production in the tunnel sections and compare that to what had actually been achieved. Similarly, questions were asked about how the Corporation could be confident that contract 823A would achieve the forecast rate of production given the serious delays in that contract even before the flooding incident on *30 March 2014*;
- (E) to what extent the Corporation was at risk for unknown conditions (e.g. marble zone) in the areas where tunnelling remained to be completed and what allowances had been made in the schedule for these risks. The PjT was also asked what steps, if any, could be taken to mitigate the potential risks;
- (F) how confident the Corporation could be of the revised WKT schedule;
- (G) to the extent that the rate of concrete production required for WKT would be higher than what had been achieved on the Project so far, what confidence the PjT had in the contractor's ability to achieve that higher production rate and why;
- (H) to what extent the programme schedule relied on being able to import labour and whether it could be achieved with the labour resources that the contractors already had in place;
- (I) what discussions had taken place with contractors and whether they supported the programme schedule that was being presented to the ExCom that day (recognising that commercial discussions also needed to take place);
- (J) whether the programme was dependent on Government approval of a blasting permit for rock excavation at WKT;
- (K) whether the programme was dependent on Transport Department approval of a road closure for Lin Cheung Road; and
- (L) whether the programme was dependent on approval of a 24-hour Construction Noise Permit.

4.130 At the end of the discussion, the ExCom apparently concluded that it would not be possible to start passenger services in 2016 and that it

was going to be necessary to indicate that the start of passenger services would be delayed to 2017 or later.

- 4.131 In the tunnelling sections, the assumption of a nine month delay to restart the flooded TBM was explained by the PjT to be at the conservative end of the range submitted by the contractor (which had suggested six to nine months). There was some view that this might be shortened if the contractor could cannibalise electronic components from the other TBM in that contract area (in the other tunnel), but this was not assured and was not incorporated into the programme schedule. The PjT also highlighted TBM enhancements that were in progress, which were expected to enhance the production rate of the 823A TBMs. The assumptions for contract 826, meanwhile, allowed for further delay crossing into Hong Kong and for a lower production rate in the marble zone given the unknown conditions in that area.
- 4.132 At WKT, ground conditions were now known and the assumed excavation rate was broadly consistent with what was being achieved at that time. In addition, the concrete production rate was assumed to be 5000m³ per week, which was significantly less than the contract 810A Master Programme. While the rate exceeded the current level of production, the PjT put forth what the ExCom considered to be a sound basis for why that rate should be achievable as the contractor opened up more area in the site and removed equipment that had been impeding concrete production.
- 4.133 The programme as put forth did not assume any imported labour as the political feasibility of that was still unknown. The PjT indicated that the programme was consistent with current labour resources.
- 4.134 The PjT also saw opportunities to advance the schedule, but this depended on Government approvals of a blasting permit for excavation and/or agreement for closure of Lin Cheung Road. While both of these actions were desirable, the PjT confirmed that the schedule was not dependent on Government approvals beyond what had already been agreed. The ExCom agreed that those approvals should be pursued (along with a request for a 24-hour Construction Noise Permit), but that Government approval should not be assumed in the programme schedule.
- 4.135 The ExCom also noted that the programme schedule indicated that passenger service could be initiated in October 2017. From a public communication point of view, the ExCom felt that nevertheless, the

Corporation should say "*end of 2017*", providing a further three month contingency in the programme schedule. The ExCom considered whether it would be better to use 2018 for the start of passenger services, but did not feel that schedule was supportable given that the 2017 start was based on a set of realistic assumptions and generally known conditions. The ExCom also considered whether it was better to leave the completion date open-ended and to say that the Corporation would provide a new completion date at a later time. This was not felt to be the best way to handle the situation as it would leave too much doubt and uncertainty about the Project.

- 4.136 Given the significance of the delay, the members of the ExCom discussed the next steps. The ExCom recognised the public and media interest in the Project and that the delay to the opening date for the Project would likely become a public issue very soon.
- 4.137 The ExCom apparently agreed that it was important to reach out to the Chairman and the STH quickly. The ExCom also discussed the need to reach out to counterparts within the THB and the HyD, particularly the DST and the HyD. No suggestion was made at the *12 April* meeting to call a meeting of the Board.
- 4.138 The CEO called the Chairman and the STH immediately after the XRL Review meeting had concluded. While the CEO was unable to contact either of them straightaway, he did speak with the Chairman and the STH before the end of the day. Both conversations apparently focused on the programme delay and highlighted that passenger services would be delayed to 2017. According to the CEO and the Chairman, there were no discussions about the budget impact as this was not covered in the meeting and Procurement would be conducting a "bottoms up exercise" taking the revised schedule into account. The likely public interest in the delay was also discussed with both the Chairman and the STH, since it was recognised that this might become a public issue very soon.
- 4.139 The Chairman communicated to the CEO his view that the Corporation should go public promptly. The Chairman felt that a full discussion by the PjD would be better than just responding to questions. The CEO relayed the Chairman's thoughts to the PjD and the General Manager - Corporate Relations.
- 4.140 The Chairman subsequently had a telephone conversation with the STH on Sunday, *13 April 2014* and followed up with the CEO later that day. The Chairman stressed to the CEO that he and the STH

agreed that "we" should go public promptly. Both the Chairman and the STH apparently considered time to be of the essence here. There seems to have been no suggestion from any of the three participants in these conversations over that weekend of *12 and 13 April* that a special Board meeting should be called.

- 4.141 Also on *13 April 2014*, the DHy and the RDO/HyD met the PjD and other members of the PjT to discuss progress on the Project, taking into account the DRM for the works in WKT construction and the flooding of the TBM incident under contract 823A. The Corporation told Government that it was still working with the related contractors for a realistic programme to mitigate the current delay and would inform the DHy accordingly. There appears to have been no mention by the PjD of his presentation the day before to the ExCom.
- 4.142 The ExCom met on the Monday morning (*14 April 2014*). The CEO updated the ExCom on his conversations with the Chairman and the STH and also on the Chairman's view that the Corporation should communicate the delay to the public promptly. The PjD updated the ExCom on his meeting with the HyD and the RDO. The ExCom discussed the Chairman's suggestion to go out proactively. At that point, the ExCom decided that it would be better to wait and planned to update the Board at the scheduled meeting on *29 April 2014*.
- 4.143 The Chairman, CEO and PjD met the STH and transport officials on the evening of *14 April*. According to the attendees at that meeting from the Corporation, there was a strong push during the meeting to go public promptly. The Corporation attendees left the meeting with the view that the Corporation would go public the next day.
- 4.144 During the evening of *14 April* and into the early hours of *15 April*, the Corporation's Corporate Relations Department had begun work on preparing a draft press statement, Q&As and a script for the members of the PjT due to attend the anticipated press briefing on *15 April*.
- 4.145 The CEO had several conversations with the STH on the Tuesday morning (*15 April 2014*). The STH indicated that he wanted to go out first to announce that the Project would be delayed. He planned to do that after the Executive Council meeting that morning. The CEO suggested as an alternative that the STH and he should appear together before the media. The STH declined the CEO's suggestion and indicated that he would announce the delay to the press in the

early afternoon but defer details to the Corporation's press briefing, which was due to take place later that day at 5:00 p.m.

- 4.146 The CEO also had several conversations with the Chairman on that Tuesday. The Chairman took account of the CEO's discussions with the STH and understood that the Corporation would arrange a press briefing in the afternoon. None of those involved in these conversations on *14 and 15 April* raised a question of whether there should be a Board meeting or any communication with the Board.
- 4.147 In his briefing to the media at 2:30 p.m., the STH conveyed his surprise and disappointment regarding the progress of the Project.
- 4.148 There had apparently been some earlier discussion between members of the ExCom as to who should appear for the Corporation at its press briefing later that afternoon. The CEO discussed the question of attendees with the General Manager - Corporate Relations and whether he should lead the press briefing. However, the view reached was that the delay was an operational matter and therefore should be presented by the member of the executive directorate and team responsible for that operational area, in this case the PjD and the PjT. It was also anticipated that the presentation to the media would principally be technical, a description of the reasons for delay, and that therefore members of the PjT were best placed to present and answer media enquiries. Accordingly it was the PjD and members of the PjT who led the press briefing on the afternoon of *15 April 2014* to announce the delay to the completion of the Project.
- 4.149 The IBC has been informed that this decision that the PjD should lead the press briefing was consistent with the Corporation's approach to media briefings regarding operational matters where it will usually be the relevant operational department that takes responsibility for the briefing. As a result, the CEO was apparently advised, and accepted, that there was no need for him to lead or attend the press briefing that afternoon.
- 4.150 A press statement was also released to accompany the media briefing. Entitled 'Revised Programme for Hong Kong Section of Express Rail Link Project', it was just over one page long and attempted to summarise the reasons for the delay. The content of the press statement had been quite closely discussed within the ExCom over *14 and 15 April*. The press statement was drafted initially by the General Manager - Corporate Relations, and it was circulated for review to the senior members of the PjT, PjD, CEO, certain other

members of the ExCom and Chairman for their comment and approval. The Chairman also approved the press statement before it was released on *15 April*.

- 4.151 The IBC understands that in relation to the Project it is the usual custom of the Corporation to send any press statements to Government for comment before they are released. The IBC also understands that the Corporation usually expects to receive some comments from Government before the statements are released. Two draft versions of the press statement were sent to Government for comment, the first at about 3:30 a.m. on *15 April* and a second version at about 10:30 a.m. on *15 April* (although neither was in the form of the version finally released). The second version was expressed to supersede the version sent earlier in the morning. The first version had also been accompanied by a draft script and Q&As for the members of the PjT due to attend the anticipated press briefing in the afternoon. No comments were received from Government on either version.
- 4.152 The press statement began by describing in some detail the flooding of the TBM in the contract 823A north tunnels. It then continued, more briefly, to describe delay issues experienced at contract 826 and in WKT. A copy of this press statement is at Appendix 6.
- 4.153 The LD&S and the Corporate Relations Department planned to send a copy of the press announcement to the Board at the same time as or shortly after its release. However, a communications problem ensued between the Corporate Relations Department and the LD&S and the press release was not sent to the Board until two hours after the press briefing.
- 4.154 When circulating the press release to the Board, the LD&S indicated that a full briefing on this subject would be given at the forthcoming Board meeting, to be held on *29 April 2014*. However, following their receipt of the press announcement, certain members of the Board contacted the Chairman directly and requested that he call a Special Board Meeting on *16 April 2014*, which he did.

A Special Board Meeting was held on *16 April 2014* to discuss the delay to the Project. On the same day a special PSC meeting was also held at which the DHy requested that the Corporation provide further information to assist Government to analyse in detail the latest progress of the Project.

LIST OF RSC MEETINGS ATTENDED AND REPORTS / PAPERS SUBMITTED

	Date	Agenda Item	Attended by
1.	16 Apr 2010	Mechanism of regular report on the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	TC Chew, PjD Paul Lo, GM-XRL Maggie So, Sr Mgr-P&P
2.	6 Jul 2010	Progress report on the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link project	TC Chew, PjD Paul Lo, GM-XRL Maggie So, Sr Mgr-P&P
3.	20 Sep 2010	Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link project (Meeting with deputations/the Administration)	Paul Lo, GM-XRL Albert Lam, CM-XRL Terminus Maggie So, Sr Mgr-P&P
4.	20 May 2011	Progress and financial situation of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Paul Lo, GM-XRL Albert Lam, CM-XRL Terminus Maggie So, Sr Mgr-P&P
5.	24 May 2013	Progress and financial situation of the construction of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Antonio Choi, GM-XRL Simon Tang, GM-XRL Tunnels Maggie So, DGM-P&P
6.	22 Nov 2013	Progress and financial situation of the construction of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Antonio Choi, GM-XRL Alvin Luk, GM-XRL E&M Maggie So, DGM-P&P
7. & 8.	5 May 2014 & 19 May 2014	Latest position of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Raymond Ch'ien, Chairman Jay Walder, CEO TC Chew, PjD Antonio Choi, GM-XRL Mark Lomas, PM-XRL (P&C) Maggie So, DGM-P&P
9.	4 Jul 2014	Safety management measures for trains of Guangzhou-Shenzhen-Hong Kong Express Rail Link	TC Chew, PjD Jacob Kam, OD Alvin Luk, GM-XRL E&M CL Leung, Chief E&M Engr Maggie So, DGM-P&P
10.	24 Nov 2014 (attended but item not discussed)	Progress update of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Philco Wong, PjD Simon Tang, GM-XRL Maggie So, DGM-P&P
11.	2 Jan 2015	Progress update of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Philco Wong, PjD Simon Tang, GM-XRL Alvin Luk, GM-XRL E&M Maggie So, DGM-P&P
12.	6 Mar 2015	Progress update of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Philco Wong, PjD Simon Tang, GM-XRL Alvin Luk, GM-XRL E&M Maggie So, DGM-P&P
13.	19 May 2015	Progress update of the construction of the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link	Philco Wong, PjD Simon Tang, GM-XRL Alvin Luk, GM-XRL E&M Maggie So, DGM-P&P

Progress reports submitted by THB

1. July 2010 – 1st Half-yearly Report for the Period ending 30 Jun 2010 [LC Paper No. CB(1)2290/09-10(01)]
2. Mar 2011 – 2nd Half-yearly Report for the Period ending 31 Dec 2010 [LC Paper No. CB(1)1585/10-11(07)]
3. Sep 2011 – 3rd Half-yearly Report for the Period ending 30 Jun 2011 [LC Paper No. CB(1)3049/10-11(01)]
4. Apr 2012 – 4th Half-yearly Report for the Period ending 31 Dec 2011 [LC Paper No. CB(1)1710/11-12(01)]
5. Oct 2012 – 5th Half-yearly Report for the Period ending 30 Jun 2012 [LC Paper No. CB(1)24/12-13(02)]
6. May 2013 – 6th Half-yearly Report for the Period ending 31 Dec 2012 [LC Paper No. CB(1)1108/12-13(01)]
7. Oct 2013 – 7th Half-yearly Report for the Period ending 30 Jun 2013 [LC Paper No. CB(1)81/13-14(01)]

Progress reports submitted by THB and MTR

1. Nov 2014 – Half-yearly Report for the Period ending 30 September 2014 [LC Paper No. CB(1)260/14-15(04)]
2. Mar 2015 – Quarterly Report for the Period ending 31 Dec 2014 [LC Paper No. CB(4)576/14-15(05)]
3. May 2015 – Quarterly Report for the Period ending 31 Mar 2015 [LC Paper No. CB(4)954/14-15(07)]

Papers submitted by MTR

May 2014 - Construction and Commissioning of the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link [LC Paper No. CB(1)1354/13-14(01)] and Supplementary Information [LC Paper No. CB(1)1438/13-14(01)]

MTR's paper on XRL train submitted as Annex at THB & EMSD's paper

Jul 2014 – Safety Management Measures for Trains of Guangzhou-Shenzhen-Hong Kong Express Rail Link [LC Paper No. CB(1)1722/13-14(05)]

Key:

CEO = Chief Executive Officer

Chief E&M Engr = Chief E&M Engineer

CM– XRL Terminus = Construction Manager-XRL Terminus

DGM–P&P = Deputy General Manager-Projects & Property Communications

GM–XRL = General Manager-XRL

GM–XRL E&M = General Manager-XRL E&M

GM–XRL Tunnels = General Manager-XRL Tunnels

OD = Operations Director

PjD = Projects Director

PM–XRL (P&C) = Project Manager-XRL Terminus (Planning & Controls)

Sr Mgr–P&P = Senior Manager-Projects & Property Communications