



BD MIN 191107

CROSSRAIL BOARD

**Minutes of the Meeting of the Board of Directors of Crossrail Limited
Held on Thursday 7 November 2019 at 11:00
10Boardroom01, 5 Endeavour Square, Stratford, London E20 1JN**

Members:	In Attendance:	Apologies:
Tony Meggs <i>CRL Chair</i>	Funmi Amusu <i>Assistant Company Secretary</i>	
Sarah Atkins <i>Non-executive Director</i>	Susan Beadles <i>Head of Legal Services & Company Secretary</i>	
Kathryn Cearns <i>Non-executive Director</i>	Mark Cooper <i>Programme Director</i>	
Phil Gaffney <i>Non-executive Director</i>	[REDACTED] <i>Project Representative (PRep)</i>	
David Hendry <i>Chief Finance Officer</i>	Hannah Quince <i>Chief of Staff</i>	
Steve Livingstone <i>Non-executive Director</i>	Howard Smith <i>Chief Operating Officer</i>	
Anne McMeel <i>Non-executive Director</i>	Chris Binns (Items 1-6 only) <i>Chief Engineer</i>	
Nelson Ogunshakin <i>Non-executive Director</i>	Alex Kaufman (Items 5-17 only) <i>Communications Director</i>	
Andy Pitt <i>Non-executive Director</i>	Simon Kirby (Items 1 – 17 only) <i>Crossrail Advisory Panel</i>	
Nick Raynsford <i>Deputy CRL Chair</i>	Ailie MacAdam (Items 1 – 6 only) <i>Bechtel Limited</i>	
Chris Sexton <i>Deputy CEO</i>	Stuart Westgate (Item 6 only) <i>Head of Project and Programme Assurance</i>	
Jo Valentine <i>Non-executive Director</i>	Heidi Alexander (Item 18 only) <i>Deputy Mayor for Transport</i>	
Mark Wild <i>CEO</i>	David Bellamy (Item 18 only) <i>Mayor's Chief of Staff</i>	
	Mike Brown (Item 18 only) <i>TfL</i>	
	Ruth Hannant (Item 18 only) <i>DfT</i>	
	David Hughes (Item 18 only) <i>TfL</i>	
	Bernadette Kelly (Item 18 only) <i>DfT</i>	
	Sadiq Khan (Item 18 only) <i>Mayor of London</i>	
	Simon Kilonback (Item 18 only) <i>TfL</i>	
	Matt Lodge (Item 18 only) <i>DfT</i>	
	Shashi Verma (Item 18 only) <i>TfL</i>	

The meeting was quorate.

<p>Item 1</p>	<p>The Chair welcomed Board members and attendees.</p> <p>Directors' Interests</p> <p>Members were reminded that any interests in a matter under discussion must be declared at the start of the meeting, or at the commencement of the item of business.</p> <p>There were no interests declared in relation to the business of the meeting.</p>
<p>Item 2 BD MIN 191010</p>	<p>Minutes of the Meetings of the Board held on 10 October 2019</p> <p>The Board APPROVED the minutes of the meeting held on 10 October 2019 for signature.</p>
<p>Item 3 BD AC 191107</p>	<p>Actions and Matters Arising</p> <p>20.098 – Residual Works – it was NOTED that the information on residual works had changed significantly due to a movement in the trial running date.</p> <p>20.117 – Air Quality Monitoring – the meeting NOTED that the wording of this action would be changed to reflect that used in the minutes of the last meeting on 10 October 2019. Also, an update on this action would be provided as part of agenda item 4 – Safety Update.</p> <p>20.118 – CSJV Dust and Air Monitoring – an update on this action would be provided as part of agenda item 4 – Safety Update.</p> <p>20.119 – Top 10 CRL and NR Risks – it was NOTED that there was also a parallel action for the top 10 CRL and TfL risks and that the actions list would be updated to reflect this.</p> <p>The Board NOTED the updates to all the other 'due' actions, some of which were covered by the agenda for the day's meeting.</p>
<p>Item 4 Verbal</p>	<p>Safety Update</p> <p>The Board NOTED the following:</p> <ul style="list-style-type: none"> • There was an incident where an empty gas cylinder fell and struck an individual on the right foot, causing some bruising and swelling. The injured person was taken to the hospital and an x-ray revealed that he had broken bones in his foot. An investigation into the incident was underway; • Stepping Up Week (SUW) diary invitations had been sent out for the activities planned for that week (18 – 22 November 2019); • An audit carried out by the CRL health and safety team had revealed a considerable variance in the HSPI scores being reported by the contractors and the views of CRL's health and team members. It was found that the contractors were being complacent in scoring themselves full HSPI marks. As a result, all the contractors scores would be re-baselined and this would likely be reflected in a reduction in the scores in the immediate future; • The new health and safety 'one team' video needed to be shared more widely across the programme as some contractors personnel were yet

	<p>to see it;</p> <ul style="list-style-type: none"> • The safety leadership of the Project Delivery Partner had been very good. A verbal report from Bechtel Limited concerning its analysis of High Potential Near Misses (HPNMs) across the projects in which it was involved was NOTED; they had found that fatalities were spiking across the transportation industry and they were now looking into HPNMs and their link to fatalities and serious injuries, because there was a lot of evidence to show that they were directly linked. Data from 3 billion Bechtel Limited working hours had been analysed and work was ongoing to consider all the relevant HPNM data. The Board were keen for the data from this analysis to be shared with them; • It was key to ensure that CRL was emphasising the importance of safety above production on the project; and • Regular air quality monitoring had taken place at Bond Street station and going forward, mitigations had been identified including getting covers for the fans to prevent foreign bodies and dust from passing through; and reconfirmation of the works instruction to include air quality monitoring every week. The Board questioned whether the risk of construction dust was being proactively managed and REQUESTED that this should be looked into. <p>Action: Mark Cooper</p>
<p>Item 5 BD CBR 191107</p>	<p>Crossrail Board Report Period 7</p> <p>The Board NOTED that the Board Report for Period 7 would be considered as part of agenda item 6 – Delivery Control Schedule (DCS) v1.0 Progress and AF CDC Update.</p>
<p>Item 6 77/20</p>	<p>CRLB 77/20 – Delivery Control Schedule v1.0 Progress & AF CDC Update</p> <p>The Board received a paper providing an update on current performance and forecasted future performance against the DCS v1.0 baseline including an update on the refinement and enhancement of the detailed planning for activities within the DCS and the associated AF CDC implications.</p> <p>The Board NOTED the following:</p> <ul style="list-style-type: none"> • The thinking behind the DCS had been refined and this had highlighted that the key drivers of schedule movement in Period 6 and 7 were attributed to the movement of the trial running forecast date from a forecast in Period 6 [REDACTED] to a forecast in Period 7 of [REDACTED] • Whilst there had been a number of performance issues that had affected the DCS between Period 6 and 7 [REDACTED]), the forecast changes that drove the critical path to trial running and forecast schedule prolongation were: the routeway chapters (+9 weeks); and final Central Operating System (COS) assurance (+3 weeks); • The Board questioned whether staged completion of the tunnel vent systems was being explored and considered that this should be taken into account in the forecast. It was NOTED that except the tunnel vent system, the routeway could not be handed over in stages and that this

had been the topic of extensive consideration;

- The Board also questioned the accuracy of the data on handover and **NOTED** that there had been input from Rail for London (RfL) and other relevant contributors and that the resulting data had been signed off by the Programme Director, Chief Operating Officer and Technical Director;
- The Board expressed their frustration with the considerable non-performance of the Tier 1 contractors. The Board highlighted the need for a plan to address this and for there to be consequences for the contractor's non-delivery. It seemed that despite all the efforts being made by the Executive team, the required performance was not forthcoming from the contractors;
- The Board **NOTED** the key dates summary table setting out [REDACTED] [REDACTED] dates based on the DCS v1.0 baseline, the current Period 7 forecast and the difference between the Period 7 forecast and the baseline. The Board questioned the confidence of entering into train operation on the dates in the current Period 7 forecast for Stage 4, considering the lack of a reliability plan;
- The Board considered the validation of assumptions and schedule rationale behind the Period 7 forecast and relating to the following:
 - Software functionality – only 60% of tests had been completed so far and there was still a lot of uncertainty around the functionality of the software. The Crossrail Advisory Panel were planning an independent review of Siemens and Bombardier Transportation (BT) in December 2019, to provide a perspective on how they were managing the software functionality issues and would report back on this to the Board at a future meeting;
 - Tunnel Vent System – issues with door pressurisation were currently being addressed. To tackle this issue, TfL resources were being used to augment those from the Alstom TSO Costain JV (ATC). The Board suggested the use of MTR Hong Kong resources as well as they had a huge bank of experience on tunnels and air vent systems;
 - Routeway Assurance – the key measure for improving this was hazard closure. Also, the handover process needed to be challenged to see opportunities to commence trial running earlier;
 - Delivering SC1 – all the project teams had been formally instructed on the requirements to achieve SC1;
 - Physical works complete – i.e. SC3. Only 3 stations would be outstanding at trial running: Whitechapel, Bond Street and Canary Wharf; and
 - Trial running and trial operations – the duration assumption for trial running was 4 months [REDACTED]. The Board considered whether there was an opportunity to reduce the timing of trial running and increase that for dynamic testing, using RfL signallers and maintainers. The Board also considered that it would be useful to model backwards from Stage 4 to determine what needed to be achieved in terms of reliability as that would

inform what was necessary for trial running and highlight opportunities for further mitigation;

- The Board questioned whether there were any other areas that had not been highlighted which could have an effect on getting to Stage 3 and **NOTED** that the Romford Control Centre; and Board and organisational transition required for trial running to Stage 5 were other areas to monitor;
- The Board **NOTED** the AFCDC at £15,328m represented an increase of £324m against the previous period, £321m above the baseline budget and funding package. [REDACTED]
[REDACTED]
[REDACTED] Other net increases included ongoing productivity shortfalls. It was **NOTED** that these increases reflected the crystallisation of previously identified downside scenarios flagged in August and October 2019; and
- In view of the late timing and high-level nature of the provision of the schedule and scope gap information, it was further **NOTED** that significant top down estimates had been required which would need to be built and confirmed bottom up in future periods.

The Board considered whether they had sufficient information for them to be confident in the forecast schedule and cost or whether there was more to be done to validate the data being provided before publicising it. To provide the Board with more confidence in agreeing to a revised DCS, the following actions were **AGREED**:

- Tunnel Vent System – provide an assessment of rig testing with the PD+11 software after its initial drop;

Action: Chris Binns/ Colin Brown

- Routeway assurance – provide greater working detail around routeway assurance including: the data used (or that could be used) to substantiate the current forecast schedule e.g. hazard closure rates; demonstrated performance where possible i.e. evidence of routeway assurance being progressed; benchmarks from other projects; creative options to shorten the timeline for achieving routeway assurance; and a robust assessment of the downside (P80/ 95 scenario);

Action: Chris Binns/ Colin Brown

- Physical works complete – provide clarity on: SC3 to SC3 ROGS; and prepare a paper for the Board meeting on 5 December 2019 on what was required for the Infrastructure Managers (IMs) to take over stations including cost implications/ savings;

Action: Mark Cooper

- Trial running and trial operations – provide greater detail on this to the Board including sharing the mileage breakdown of the 4-month duration assumption for trial running; and an understanding of the interdependency between dynamic testing, trial running and trial operations;

Action: Chris Binns/ Colin Brown

	<ul style="list-style-type: none"> • Provide a one-page document with the dates assumed under the scenarios [REDACTED] and set out more clearly the alignment of milestones and dates with costs; <p>Action: Rob Scopes</p> <ul style="list-style-type: none"> • Provide an improved line of sight of Stages 3-4-5 including reliability growth linked to mileage and duration options arising from this (also applying this from the end of the programme and working backwards i.e. Stages 5-4-3. In addition, provide insight into operator readiness; <p>Action: Howard Smith</p> <ul style="list-style-type: none"> • Provide greater detail to the Board on: the post Stage 3 delivery team including the delivery model to completion; a refresh/ revision of the Project Development Agreement (PDA) completion requirements (CRL handover to TfL); and governance matters (e.g. relating to the existence of the CRL Board, Executive team etc); <p>Action: Chris Sexton</p> <ul style="list-style-type: none"> • Provide the Board with the commercial strategy for managing the implications of the proposed forecast and how this would affect existing commercial/ incentivisation arrangements; <p>Action: Neil Thompson</p> <p>Recognising that a substantial amount of information was being requested from the Executive team, the Board considered that it would be useful for the Executive team to organise an interactive session/ workshop for the Board prior to the next Board meeting, to take them through the responses to some of the actions listed above.</p>
<p>Item 7 Verbal</p>	<p>Communications Approach</p> <p>The Board NOTED the communications approach for publicising the change in forecast cost and schedule.</p>
<p>Item 8 78/20</p>	<p>CRLB 78/20 – Planning for Stages 4 and 5b</p> <p>The Board took the paper on planning for Stages 4 and 5b as read.</p>
<p>Item 9 79/20</p>	<p>CRLB 79/20 – Status of Certified Information for Funding Drawdown</p> <p>The Board NOTED that the status of certified information for funding drawdown would be considered as part of agenda item 18 – De-brief discussion with the Sponsors.</p>
<p>Item 10 80/20</p>	<p>CRLB 80/20 – C412 Bond Street Station – Investment Authority</p> <p>The Board GRANTED the request for Investment Authority (IA) for C412 – Bond Street Station in the sum of [REDACTED].</p> <p>It was NOTED that this request had been endorsed by the Investment Committee on 23 October 2019.</p>

<p>Item 11 81/20</p>	<p>CRLB 81/20 – Update to the Investment Committee Terms of Reference</p> <p>The Board APPROVED the changes that had been made to the Terms of Reference of the Investment Committee to update its membership, following discussions between the CRL Chair and the Non-executive Directors with regard to the inclusion of new Board members on the Board Committees. The amendments were mainly as follows:</p> <ul style="list-style-type: none"> • Sarah Atkins now acting as Deputy Chair; • Removal of Nick Raynsford as a member; and • Addition of Andy Pitt and Jo Valentine as members.
<p>Item 12 82/20</p>	<p>CRLB 82/20 – Draft Semi-Annual Construction Report 22</p> <p>The Board received the draft Semi-Annual Construction Report 22 (SACR22) and did as follows:</p> <ul style="list-style-type: none"> • APPROVED the SACR22 for submission to the Sponsors; • NOTED that the Financial Model which informed the forecast costs in SACR22 had been updated in accordance with the requirements as defined in Schedule 7 ('Financial Model') of the Crossrail PDA; and • NOTED that the CRL Chief Finance Officer had approved the release of the updated Financial Model to the Sponsors. <p>The Board NOTED that the SACRs contained historical information and questioned whether it was useful to keep producing these reports.</p>
<p>Item 13 83/20</p>	<p>CRLB 83/20 – Periodic Assurance Report Period 7; and Targeted Assurance Reviews 8 (Schedule) and 9 (Cost)</p> <p><i>Periodic Assurance Report (PAR) Period 7</i></p> <p>The Board NOTED the PAR for Period 7.</p> <p><i>Targeted Assurance Reviews (TARs) 8 (Schedule) and 9 (Cost)</i></p> <p>The Board NOTED the recommendations identified in the TAR Summary Reports.</p> <p>The Board NOTED the suggestion from the Chair of the Audit and Assurance Committee, Anne McMeel, that the recommendations from the PARs and TARs should be considered at Audit and Assurance Committee meetings.</p>
<p>Item 14 84/20</p>	<p>CRLB 84/20 – PRep Report Period 6 including CRL's Response to Sponsors Summary</p> <p>The Board NOTED the PRep report for Period 6 including CRL's response to the Sponsors.</p> <p>With regard to the PRep report for Period 7, the Board NOTED the following opinions of the PRep:</p> <ul style="list-style-type: none"> • that the TARs could not be of sufficient quality until around June 2020, due to the constantly shifting schedule; and

	<ul style="list-style-type: none"> • [REDACTED] Contractors were being paid to complete the programme and should be taking more responsibility for their work. 		
<p>Items 15&16</p>	<p>Minutes of Board Committees for Reference</p> <p>The Board received the following minutes for reference:</p> <table border="1" data-bbox="368 383 1121 461"> <tr> <td data-bbox="368 383 852 461">Investment Committee</td> <td data-bbox="852 383 1121 461">IC MIN 190925</td> </tr> </table>	Investment Committee	IC MIN 190925
Investment Committee	IC MIN 190925		
<p>Item 17 AOB</p> <p>85/20</p>	<p>CRLB 76/20 – Crossrail Advisory Panel Update</p> <p>The Board took the Crossrail Advisory Panel update paper as read.</p> <p><i>Other Business</i></p> <p>The Board NOTED that the Public Accounts Committee had been critical of the CRL Board relying on the Executive team’s feedback and it was AGREED that the Board should commission an independent informal assessment of the increase in cost and schedule;</p> <p>Action: Tony Meggs</p> <p>There was no other business.</p>		
<p>Item 18 Verbal</p>	<p>De-brief Discussion with the Sponsors</p> <p>The Board provided the Sponsors with an overview of the matters that had been considered during the meeting, highlighting the following: the evidence of complacency on the part of contractors in their HSPI scoring and the recalibration of these scores; proactive work being done on air quality monitoring at sites; challenges that remained around software, scope gaps and gaps in evidence from contractors on scope completed; the need to look at the recourse CRL had against the contractors for not completing the works as they should have and calling them into account for what they had not delivered; the realities of handover and routeway assurance adding considerable time to the programme; discussions around key assumptions of main elements of the programme, with the least confidence being in the assurance of the routeway; noting of the Board’s views on the forecast schedule and cost as follows: in terms of reporting, there was more of a focus on [REDACTED] dates; in terms of confidence in the cost numbers, the increases were based on [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED] the intention of the Board to obtain an independent informal assurance of the increase in cost and schedule; the encouragement to the Executive team to drive towards attaining trial running as quickly and safely as possible and the need to work backwards from the end product to understand better the milestones necessary to achieve the schedule (in conjunction with TfL, DfT, MTR and NR); the need to be considerate of the high level of challenge and pressure that the Executive team was receiving and to ensure that they had the necessary bandwidth to manage all that they were being required to; and the need to look at how, with TfL’s input, the project could be moved into an operational body within TfL.</p> <p>The Commissioner asked for confirmation of the additional amount required for the project, noting that this would amount to £400-£650m above the last</p>		

	<p>funding provided; questioned whether the issue with the assurance of the routeway was based on resources or time and noted that there were adequate resources, that one of the issues related to the quality of documentation being received from the contractors and noted that work was ongoing to get the documents up to standard; [REDACTED] noted that TfL was ready to provide support with creatively using trial running for gaining train mileage without the trains being officially in ROGS; [REDACTED].</p> <p>In addition, the DfT questioned the time frame for the independent informal assurance for the Board and noted that due to time constraints, the Crossrail Advisory Panel would likely carry out the assurance and the intention was to have this complete by the December 2019 Board meeting; confirmed that the DfT were happy to support with looking backwards to determine critical milestones for achieving the programme; expressed disappointment that the contractors were not finishing their works and highlighted that this would affect the interaction of the Sponsors with these contractors in the future.</p> <p>The Mayor questioned how the morale of the CRL team and stakeholders would be managed and what the plans were for communicating the changes to costs and schedule, highlighting that the manner in which this was handled was key; and noted that plans were in place for managing this.</p> <p><i>The meeting adjourned for the Sponsors to confer about the status of the certified information for funding drawdown for CRL.</i></p> <p>The meeting reconvened and the Sponsors confirmed that immediate funding for the project would continue to be provided and the expectation was that this would be extended for the next [REDACTED] while a new funding agreement was put in place. The Sponsors stated that they would formally write to the CRL Chair and CRL CEO to confirm the funding plan.</p> <p>TfL also confirmed that their 'letters of comfort' to CRL, dated 30 August 2011 and 10 December 2018, remained in full force and effect.</p>
<p>Item 19 NEDs</p>	<p>NEDs only Session</p> <p>Non-executive Directors discussed the day's meeting.</p>

**Signed by:
Tony Meggs
Chair**

[REDACTED SIGNATURE]