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Crossrail Project Representative

Crossrail Joint Sponsor Team

Sponsor Summary

Project Status Report 139

Period 3 FY2020-21

31 May 2020 – 27 June 2020

Document No. B2387600/139/1.7

24 July 2020



Official ~ Sensitive Commercial

Sponsor Summary PSR 139

Project no: B2387600
 Document title: Sponsor Summary for PSR 139
 Document No.: B2387600/139/1.7
 Date: 24 July 2020
 Client name: Crossrail Joint Sponsor Team
 Client no: RM 3730
 Author: [REDACTED]
 File name: PSR 139 Period 3 FY 2020-21 Sponsor Summary - v1.7

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Note: This report relies on the information set out in CRL's Period 3 reports augmented by more current information received by PRep during the course of our routine discussions with CRL since the Period close on 27 June 2020. Note that information emerging after the close of Period 3 is subject to formal confirmation by CRL in its Period 3 reports. This report is supplemented by our weekly reports to JST and regular meetings with JST staff.

Document history and status

Revision	Date	Description	By	Review	Approved
1	17 July 2020	PSR 139 Period 3 FY 2020-21 Sponsor Summary v1.4 Draft	[REDACTED]	[REDACTED]	[REDACTED]
2	24 July 2020	PSR 139 Period 3 FY 2020-21 Sponsor Summary - v1.7 Final	[REDACTED]	[REDACTED]	[REDACTED]

1 Sponsor Summary

1.1 Health and Safety

In Period 3, there were no Lost Time Cases (LTC) and no RIDDOR incidents. Overall, the safety KPIs reported are within those set by the Programme and reflect reduced site activity. However, we remain concerned over resource workload, motivation and health and wellbeing across the Programme.

Two HPNM were raised in period. One related to procedural paperwork failure ahead of the start of Dynamic Testing. The process of handovers has caused confusion with safety accountability. The second HPNM related to two separate electric shock events, investigation findings indicating the wrong type of equipment for the area of works, but no broader issues on other sites.

1.2 Period Progress Overview

Since 15 June 2020, CRL has transitioned the site works to 'Route to Finish' and the balance of construction activities, previously undertaken as Niche Works, are now known as 'Construction Works to Go'. Adherence to Public Health England guidance and safe working measures continues during the Covid-19 pandemic, with the on-site work force of circa 1,900, supported by circa 1,500 resources working from home. CRL is proposing to extend the Tier 2 and Tier 3 critical resources until after completion of the Construction Blockade.

Recovery Plan

CRL continued with ongoing development of DCS v1.1, with the objective to achieve a state of maturity, that it is underpinned with robust logic, achievable assumptions and realistic productivity metrics, and supported by its supply chain.

The Construction Blockade is a key element to CRL's Recovery Plan, and completion of the Elizabeth Line. Finalisation of the Construction Blockade requires a defined scope of works, Blockade Management/Execution Plans and the associated safe access, control and supply chain support. Peer review of Blockade readiness highlighted a number of areas for improvement, as well as the need to increase the Blockade duration as a contingency.

CRL's Recovery Execution Plan¹ describes the nine modules underpinning and supporting the DCS. Fully defining the scope to go for the Stations workstream requires further development, particularly on concurrency and resilience on the C660 Communications and Control contract.

Cost

We received CRL's Cost and Risk report after the Period 2 CRL Board Meeting, which denied us reasonable time to provide any contemporaneous observations. Similarly, at the time of writing, we have not received the Period 3 Cost and Risk analysis; Period 3 Board Report commercial information and AFCDC is expected in Week 3 of the 4-week period reporting cycle.

The Period 3 AFCDC is affected by a large range of potential outcomes and CRL may not be able to report a reliable or stable forecast to its July 2020 Board, but will show progress of its development. This reflects the Period 2 AFCDC, where CRL appears keen to note that the submitted forecast is expected to change as the DCS is finalised. While CRL believes there are not many residual uncertainties, their range is broad and will continue to evolve over the next

¹ The Crossrail Covid-19 Recovery Execution Plan, Draft v1.2.
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4 weeks. We believe, therefore, that it is not unreasonable to expect the Period 3 reported AFCDC to remain static and without any greater credibility than presented in Period 2. We do not expect CRL to be in a position to carry out its cost forecasting until late July or mid-August 2020.

Delivery and Assurance

Handover delivery continued, with attention deflected from Stations, and the priority focused on the remaining Shafts and Portals (Plumstead Portal, Eleanor Street and Stepney Green Shafts). Staged Completion for Familiarisation is likely to be enacted for these assets to meet scheduled July/August 2020 dates.

As a result of CRL's intervention, productivity for Handover documents (O&M Manuals) has improved significantly. It is important these production rates are maintained, and improved upon, to ensure the assurance process will support an earliest Trial Running date.

Safety assurance submissions have slowed in the Period, despite being on the Critical Path. CRL's proposed Structured Engineering Judgement (StEJ) is one of its programme interventions to mitigate schedule slippage. While RAB(C) endorsed the StEJ submission in early July 2020, it is unclear how the bespoke and targeted process will significantly improve schedule delivery.

Dynamic Testing and Trial Running

Dynamic Testing continued and, while progress is generally positive with a small number of tests remaining to achieve completion by end of July 2020, issues outside CRL/RfL control are being experienced. Following schedule review meetings in early July 2020, the emerging Trial Running [REDACTED] requires further substantiation through finalisation and assurance of the DCS.

Organisation Transition

CRL has developed an Organisational Transition Plan. A key success criterion of this plan will be successful implementation, by [REDACTED], of the CRL Organisation to Complete, and transition to the Elizabeth Line Organisation by [REDACTED].

CRL has developed for implementation a responsibility definition matrix, a crucial tool to enable collaboration and success across large multi-discipline teams from different organisations. It will be important to ensure teams' new responsibilities are clearly communicated and embedded quickly, to realise the efficiencies needed.

Resources are constrained in both CRL/RfL, particularly for specialists with competence and authorisation for assurance sign-off in testing and verification. The manner in which CRL manages these short supply high demand resources will determine the delivery of key assets.

1.3 Ongoing Concerns

CRL's teams have exerted significant effort in short timescales, in developing the Construction Blockade. Measurement of construction works ahead of the Construction Blockade is indicating an achievement of 60% to 80%, against planned physical works. While these are indicators of improving performance, below are our ongoing concerns on the delivery of the Elizabeth Line.

Construction Blockade, Recovery Plan and Schedule

CRL will be re-engaging with its supply chain senior leadership to reaffirm their commitment to the Construction Blockade plan, scope, resources, durations and provision of materials and long

lead in items. A high degree of scope certainty will be a key factor to successful Blockade delivery, although overall metrics are yet to be published.

Closure of all Hazards through the Blockade works will enable completion of Routeway assurance. At the time of writing alignment of Hazard assurance activities was nearing completion, while scope activities require final confirmation. Resourcing and critical resources and processing time for Acceptance Certificates are issues that may also affect productivity.

Development of DCS needs to mature further to establish confidence in the delivery plan, from which certainty can be established in the costs-to-go. Despite significant effort, there is still substantial work to complete to provide robustness to the schedule before CRL's July 2020 Board. Areas for maturity development are likely to include, Stations, assurance concurrency and effective management and control of specialist verification resources.

Station schedule maturity requires most effort to address concurrency and handover, complexity and details of Station operations, integration and commissioning, systems dependency, together with milestone interdependencies. Given the works associated with one Station are significantly greater than all Shafts and Portals combined, we remain concerned at both CRL's and RfL's ability to support Stations delivery. An anticipated outcome is sequential Station handover.

At the time of writing, CRL's action plan for Bond Street Station is unclear, with PRep having no visibility on its development.

Cost and Risk

At Period 2, CRL belatedly reported an emerging AFDC of £15,734m, noting an unsubstantiated position and representing a point on a range of potential outcomes; this is an increase of [REDACTED] to the Period 13 forecast. Sponsor Delegated Authority and Funding are under pressure. Sponsor Authority only has [REDACTED] headroom and CRL is having to adopt prudent spending ahead of settling a revised funding level.

While CRL may be considering [REDACTED] dates for planning and forecasting, we would expect application of [REDACTED] dates to be more appropriate for Sponsors' consideration.

Assurance Process

Pressure developing in the T+8 process is a concern, particularly on Acceptance Certificates, their completeness, resource constraints and the ability to meet planned forecast dates. Additional time may be required to complete works beyond the original T+8 period.

CRL recognises that focus is required to increase productivity rates for Health & Safety Files. Red Line Drawing production is also an area that could warrant similar attention.

To achieve the CESAC milestone, monitoring a schedule of Safety Assurance documentation will be critical. While clearance of Safety Justification dependencies is an issue in the process, resource constraint is a major factor in processing Acceptance Certificates and Safety Justifications.

Organisation

Resources across the programme are strained. CRL senior leadership team is engaged not only in the development and review of the DCS, Recovery Plan and Construction Blockade planning, but also in the day-to-day delivery, management activities and Board/stakeholder meetings. Resources for day-to-day delivery, have been diverted for Recovery Plan workshops.

An overall programmatic approach would be beneficial to Elizabeth Line delivery; including integration of systems and Stations, commissioning and associated milestones. ELRG may be the forum to focus on strategic issues associated with forming an operable railway, but to date, this is yet to fully materialise. CRL recognises this, but with competing priorities, may be overly committed.

Risk of CRL's key resources departing in the short term and the need to support the Construction Blockade delivery is a concern. CRL's lack of communication to its resources may be linked to resolving its long-term plan.

Lack of a centrally controlled critical resource management plan, is resulting in risk to delivery dates as well as stress within teams.

Trial Running and Reliability Growth

Entry into ROGS prior to start of Trial Running is currently influenced by: delay to document production and safety evidence; completion of Safety Justification Chapters; delays in approvals from railway parties (e.g. ORR, NR); and assurance concurrency. Schedule slippage might provide an opportunity for the development and introduction of a more mature software version than TR2, with the potential for reliability growth ahead of Trial Running, and then in Trial Operations.

We are less confident on the level of detail being applied to the DCS beyond Dynamic Testing. More than twice as many EOWs, are deferred to the Trial Running period, than planned for the Construction Blockade. A schedule for delivering this significant work is required to assess the risk to the start of Trial Operations.

Increased train mileage has been planned into the schedule, but adherence to schedule dates for Trial Running will be important, if planned reliability growth and system maturity are not to be impacted. Key milestones for monitoring will be beneficial. Satisfactory reliability growth will also be a significant consideration for entry into Trial Operations.

Stage 4A opening in [REDACTED] relies upon the Central Section being under ROGS Rules, and signalling software fixes and NR traction power improvements having been completed. Schedule delays are increasing the risks to success, and drive the need for a dedicated project owner.

1.4 Key Issues for Sponsors

We remain concerned that an assured robust schedule underpinned with a fully defined scope, achievable assumptions and resource commitment is still to be finalised, from which the costs-to-go can be confirmed.

Based on assessment and concerns in our Period 3 status report, we consider the following points require further action or explanation to Sponsors, by the CRL Leadership Team:

1. What specific metrics will CRL use to monitor and define success of the Construction Blockade?
2. Who is accountable for critical resource management and how is this included in the DCS?
3. What are CRL's detailed plans to mitigate Routeway Safety Assurance as a Critical Path activity?
4. How will CRL ensure physical works in Trial Running period are minimised, to de-risk the start of Trial Operations?