



Crossrail Project Representative

Crossrail Joint Sponsor Team

Sponsor Summary

Project Status Report 152

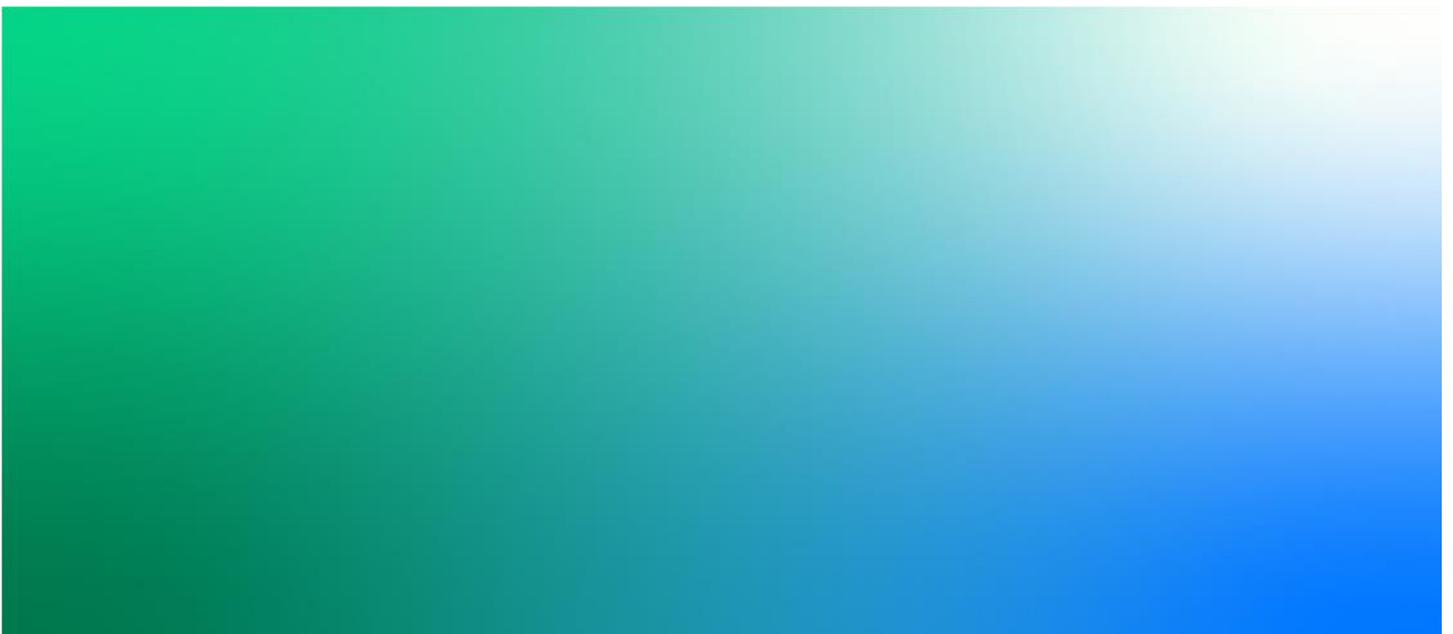
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Note: This report relies on the information set out in CRL's Period 3 reports augmented by more current information received by PRep during the course of our routine discussions with CRL since the Period close on 25 June 2021. Note that information 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	Author	Checked	Reviewed	Approved
1.	19/7/2021	PSR 152 Period 3 FY 2021-22 Sponsor Summary v1.8 ~ Draft	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
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Sponsor Summary

1. Observations

CRL continues to make positive steps towards the opening of the Elizabeth Line, although some significant challenges remain in the short term to integrate the railway for start of Trial Operations. Blockade works started as planned on 21 June 2021 and, while initial performance was slow, recovery allowed a substantial amount of the trace-dependent works to be completed. Woolwich and Liverpool Street Stations achieved SC3 ROGS/BIU on the planned deterministic dates; Paddington Station is forecast on 23 July 2021, with Whitechapel Station on 23 August 2021.

Train running was paused as planned for the June/July 2021 Blockade, but resumed with an 8 TPH service, before quickly stepping-up to a more intensive 12 TPH service. This will allow further mileage accumulation prior to the next major blockade in [REDACTED], for the deployment of ELR100 and completion of Tunnel Ventilation System (TVS) upgrade works.

The Access Control Unit has made progress with identifying access improvements, and will manage all access requirements for CRL and RfLI through to Trial Operations. The access improvement plan is expected to be implemented by the end of Period 4; this should increase the available work time and significantly reduce the volume of maintenance works that require traction power isolations¹.

1.1 Headline Concerns

Period 3 has been dominated by the completion of outstanding trace-dependent routeway EOWs during the June/July 2021 Blockade. Verification of competent safety specialist resources hindered the early part of the blockade, but the teams worked collaboratively, resulting in the completion of a large proportion of the planned physical works. A post-blockade review is intended to identify the residual works that will require further trace access; these works are likely to be scheduled into the available maintenance windows ahead of the [REDACTED] Blockade. It is important that CRL now efficiently processes the blockade outputs to close-out the open issues in its management systems (particularly eB); this, in turn, will allow the completion of assurance documentation. Historically, this close-out process has lagged increasingly behind the completion of activities on site and there are already signs that this is happening again.

Integration of CRL's plan for the completion of safety assurance documentation for entry into Trial Operations with RfLI's assurance process, is not clear. A fully-integrated programmatic approach between RfLI Operations and CRL's Project Team, including the Rail Operator MTREL, is required, which will benefit readiness for Trial Operations. This includes visibility of both CRL and RfLI performance and the tracking of interdependent assurance, operations and maintenance activities. Reliability is currently significantly down against RfLI's plan and this will need to substantially improve for entry into Passenger Service.

As CRL and RfLI seek to drive to the deterministic date for the start of Trial Operations, a countdown process will need to be implemented. It is expected that the Operator and Infrastructure Manager will play a critical role in driving this process to achieve Trial Operations. The main objective will be to meet the criteria required for exiting Trial Running and entering into Trial Operations, which will be driven from the Operator's scope and functionality plan. To date, there has not been the visibility

¹ SHEL 105, 8 July 2021.

of the process and, while the criteria required to enable a successful transition from Trial Running to Trial Operations is established, this is likely to be further scrutinised by CRL and RfLI.

The scope to complete is now determined for the start of Trial Operations, and the main concerns for completing the Trial Running period are: the close-out of Dependencies, completion of Safety Justifications and associated documentation, and obtaining ORR approval. Achievement of the necessary levels of reliability will require the anticipated improvements in ELR100 software, as well as in the Platform Screen Doors and SCADA systems, to be delivered.

The implementation of Tunnel Ventilation System upgrade works has been impacted by difficulties with site access. It is encouraging that advance works have been completed, but a focus will be required to secure access for completing the necessary staging activities, before testing during the [REDACTED] Blockade.

Completion of the Maintenance Bridging Work continues to be a concern; RfLI's Maintenance Plan is expected to identify completion of these works. To date, performance dashboards giving the actual work achieved against the forecast have not been visible to the management team; this information is necessary to give confidence in the work to complete up to Trial Operations.

CRL's schedule and costs are impacted by slippage against deterministic dates for the start of Trial Running, ELR100 software and frustrated access issues affecting stations. Consequently, the deterministic dates for Trial Operations and Stage 3 Passenger Service have slipped against DCS v1.1. Canary Wharf Station completion is threatened with further slippage, and Bond Street Station is yet to confirm its readiness date for SC3 ROGS/BIU, although this is expected to slip into [REDACTED].

[REDACTED] There remains some uncertainty around scope ownership and the timing of delivery of the critical [REDACTED] works. A likely consequential impact of all these items is an increase to the costs. Initial data, however, suggests that CRL's opening window of Summer 2022 for Stage 3 opening remains valid.

Progress has been made relating to the delivery of the end-to-end railway and completing the opening stages after Stage 3². This extends to the scope, assumptions, high level planning and identification of access arrangements for software configuration ELR200, and ELR21X, leading to Stage 5B opening. [REDACTED] is likely to be the deterministic date for Stage 5B opening. An updated strategy is expected to be reflected in DCS v1.2 when it is finalised in Period 5. Finalisation of commercial arrangements for [REDACTED] and [REDACTED] will be important for this phase of delivery.

Our concerns are summarised as follows:

- The Elizabeth Line completion plan has yet to be finalised in DCS v1.2 and risk assessment is still necessary to provide certainty to key milestone dates and final costs;
- Interim schedule DCS v1.1 J6 is tightly constrained and prolonging of works delivery on site continues to impact the testing with trains and 12 TPH trials;
- A countdown readiness process with agreed entry criteria and transparent decision making is needed to meet the deterministic milestone date for Trial Operations;
- CRL and RfLI appear unable to resolve and bring to the point of delivery pre-Passenger Service scope which has been jointly agreed;

² Executive Programme Performance Review, Part A, 13 July 2021.

physical works, appear to have been largely achieved, with greater than 90% overall completion⁶. Review of the EOWs is ongoing, but initial indications suggest that approximately 100 EOWs⁷ remain that will require trace access for clearance. Bond Street Station EOWL closure for SC2 to support Trial Operations is also being clarified, which could result in a further 75 EOWs requiring trace access. All outstanding EOWs will be the subject of review and re-scheduling into existing access windows prior to Trial Operations.

CRL is now planning for the next major blockade, scheduled to start on [REDACTED]; it will include lessons from the most recent blockade, particularly on access and working arrangements under the RfLI Rule Book.

2.2 Commercial and Risk

At the Period 3 EPPR⁸, CRL presented four AFCDC options requesting CRL Executive decision. None of the options was considered acceptable and it was agreed that further intervention was necessary to rationalise scope and cost provisions.

We have recently received⁹ the Period 3 ELDG papers and will review and report on its data in our Period 4 report. CRL has held its AFCDC at £15,939m as reported in the ELDG papers. [REDACTED]

[REDACTED] These costs have not yet been reflected in the AFCDC, as further validation is required. There are also emerging Indirect cost pressures, driven by the two-period delay for entry into Trial Operations. These pressures have also yet to be reported, as they require further validation. CRL is expecting to identify savings to target and for costs to be appropriately covered in the current prolongation risk. There is still separate prolongation at stations and routeway; consequently, we regard this AFCDC to be understated. We are concerned that CRL is excluding known cost pressures from its forecast.

Between transition into ROGS in Period 13 and the end of Period 2, CRL has cumulatively spent [REDACTED]; in the same period, CTG has reduced by [REDACTED], Risk has not changed and the AFCDC has increased by [REDACTED]. This rate of spend, together with CRL's reported underspend in each Period, indicates to us the effects of access and productivity issues which are driving prolongation costs. We expect CRL to maintain its current spend rate as it pushes to achieve its Deterministic delivery dates. In meeting these deterministic milestones, we expect the overall outturn cost to be at P50 levels; and the prolongation provision will become fully committed.

In the last two periods, CRL and RfLI held a series of workshops to finalise completion of scope items ahead of Stage 3 Passenger Service. While there is broad joint agreement on the scope remaining, which provides significant underpinning for DCS v1.2, the deferral of scope that is not essential is now required to minimise the threat to the funding limit. [REDACTED]

[REDACTED] Conclusion of the underpinning commercial strategies within DCS v1.2 is important for the determination of the final AFCDC. CRL's management team recognise the emerging threat to the £16,064m funding limit, and will undertake further deep-dive analysis of its scope and cost allowances in mitigation.

Finalisation of [REDACTED] is required to support the update to the Passenger Service deterministic date, the completion and delivery of scope to

⁶ Crossrail Summer Blockade, Progress Report dated 8 July 2021.

⁷ Trace Impacting Works Review, 6 July 2021.

⁸ Period 3 EPPR 13 and 14 July 2021.

⁹ Elizabeth Line Delivery Group meeting papers, 22 July 2021.

System Testing with the Train (STT) up to the [REDACTED] Blockade has been re-baselined in accordance with the latest Trial Running staging plan, which now includes contingency for STT testing. This will be incorporated into DCS v1.2. All 16 STT tests performed since ROGS transition have passed; a further approximately 120 tests are required to support the assurance case for Trial Operations.

2.5 Stations Commissioning and Handover

CRL has maintained momentum with the handing-over of stations to the IM against its deterministic dates. Woolwich and Liverpool Street Stations achieved BIU milestones on 25 June 2021 and 3 July 2021, respectively, but compromises were necessary. Delivery of station Asset Data remains challenging, and particularly the achievement of handover timelines and uploading of data into RfLI's database system (known as Maximo). [REDACTED]

Challenges remain with the production and processing of assurance documentation at Canary Wharf Station. The recent T-12 readiness review was unsuccessful, which would indicate that the deterministic [REDACTED] date for SC3 ROGS/BIU is at risk and may slip into [REDACTED]. CRL is addressing this through additional resources, and a refinement of the assurance process for Acceptance Certificates.

While the Bond Street Station team has confidence in its productivity assumptions, a detailed risk review of the BIU date is expected, which will be reported in Period 4. The station progress review¹² indicated that there is still significant pressure to meet CRL's earliest accelerated date for SC3 ROGS/BIU. [REDACTED] will not be able to support SC3 ROGS/BIU in [REDACTED], even with reduced functionality. CRL's target date for SC2 is [REDACTED]; however, there is pressure on this date, and the team is implementing mitigation measures to recover a 2-week delay.

2.6 Assurance

CRL has exerted considerable effort to make the June/July 2021 Blockade works a success, achieving the majority of its planned physical works. It is important that the physical works evidence is processed efficiently, to provide timely verification support to the assurance process. Initial indications suggest there is currently a widening gap in the delivery process, that could grow further if not addressed swiftly and, in turn, impact the Trial Operations start date.

¹¹ Integrated Programme Review, 6 July 2021.

¹² Project Delivery Review, 2 July 2021.

Completion of the Tunnel Ventilation System upgrade is important, as these staging works now require more access than originally planned, ahead of the [REDACTED] Blockade. Completion of these works will be necessary to support the assurance process before entering Trial Operations.

A significant number of the trace-dependent stations EOWLs were completed in the June/July 2021 Blockade. This means that the majority of the remaining station EOWL works will not be reliant upon future blockades. However, a substantial number of EOWLs are located in station areas.

2.7 Future Stages

CRL and RfLI are working collaboratively to define the schedule components and activities required to enter into service for Stage 5B and 5C. This includes engaging with its supply chain for delivery of ELR200 and developing appropriate access planning in 2022 for its deployment. It is expected that the schedule for Stage 5B and 5C will be included in DCS v1.2. Finalisation of commercial arrangements for essential contracts to deliver scope to support Stage 5B opening has still to take place. It is likely that CRL and RfLI will target Stage 5B opening in [REDACTED]. The achievement of acceptable levels of reliability and accumulated mileage will be important pre-requisites that will be monitored by the Stage 5B steering group when it forms in Period 4.