



Crossrail Project Representative

Crossrail Joint Sponsor Team

Sponsor Summary

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Note: This report relies on the information set out in CRL's Period 9 reports augmented by more current information received by PRep during the course of our routine discussions with CRL since the Period close on 11 December 2020. Note that information emerging after the close of Period 9 is subject to formal confirmation by CRL in its Period 9 reports. This report is supplemented by our weekly reports to Sponsors (DfT and TfL) and regular meetings with Sponsors staff.

Document History and Status

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1	8 January 2021	PSR 145 Period 9 FY 2020-21 Sponsor Summary v1.8 – Draft	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX
2	14 January 2021	PSR 145 Period 9 FY 2020-21 Sponsor Summary v1.9 – Final	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX

1 Sponsor Summary

1.1 Key Observations in the Period

CRL successfully completed a commissioning 'dry-run' of the communications and fire systems at Farringdon Station, providing valuable information for roll-out at other Stations. The first period of System Integration and Dynamic Testing (SIDT) included timetable operation of up to 8 trains operating in the Central Section, and a step-change in mileage accumulation and reliability growth. It also provided an insight into performance issues for possible correction in future software configurations. Acceptance by RAB(C) of the Signalling SJ for Trial Running (based upon software configuration TR2) has been achieved; RfLI's positive AsBo review of its own SJ in December 2020 is encouraging; and the formal handover of all Shafts and Portals has been achieved. These are all positive signs, and evidence of CRL's strong drive to completion.

Mitigation plans developed to achieve a Trial Running start [REDACTED] include the two-stage acceptance of Safety Justifications, the StEJ process, and, most recently, a re-sequenced and compressed schedule logic which reflects a re-evaluation of the approval process. While CRL and RfLI show good collaboration, and their teams re-work the schedule to demonstrate [REDACTED] can be achieved, the scale of the task and volume of work to complete represents a significant undertaking. This is causing intense pressure on the assurance teams to support the CESAC submission for mid-February 2021. We remain concerned that the rate of processing information to support the safety assurance process is ambitious and will require a performance step-change not previously evident on the Programme. The new requirement for all Duty Holders to support the ORR review is a risk that will require careful management and engagement. There is also a risk that substantial work will be deferred to the Trial Running period.

Finalisation of the ADM strategy will be an important part of Trial Running readiness, as it informs the CDM plan. Key to this will be CRL [REDACTED] ensuring resources are available after Trial Running. These are areas that will require Executive Management focus in the coming period.

Optimisation of overall organisation resources, to within CRL's budgetary constraints, remains a critical concern. Further work is required to define CRL and RfLI resource requirements and supply chain support through to Passenger Service, as well as the finalisation of outstanding scope and costs. CRL is unlikely to complete this exercise until the end of Period 11. In the meantime, CRL needs to work through budgetary constraints under the new governance structure, which may hinder the key activities necessary to ensure and protect the start of Trial Running, and beyond.

CRL appears determined to deliver Trial Running [REDACTED]; however, this remains a significant challenge, and Period 11 will be a watershed in determining whether this date can be achieved. In the meantime, significant cost pressures continue to emerge and the AFCDC remains understated.

Based on our Period 9 status report, we recommend that the following questions are considered by Sponsors and the CRL Leadership Team:

1. When will CRL confirm the timing for implementation of a fully defined strategy to control cost pressures?
2. How can CRL demonstrate that it is securing Duty Holder support for the Safety Case, to achieve successful entry into Trial Running?
3. When will CRL provide evidence of a fully defined organisation structure, indicating personnel through to Passenger Service with the overall associated costs?

1.2 Health and Safety

In Period 9, there were two Lost Time Cases, resulting in one RIDDOR, and two High Potential Near Misses. The Safety Performance Indicator decreased slightly, but overall indicators remain within those set by the Programme.

CRL continues to maintain a state of heightened awareness as the Covid-19 'second wave' and now 'third wave' impacts the Programme, with attention directed to safeguarding key resources, providing resilience and protecting crucial assets for operations.

1.3 In-Period Progress Overview

The November Construction Blockade was completed on 1 December 2020, achieving good productivity of the planned physical works. A follow-on Blockade started on 28 December 2020.

Recovery Plan and Schedule

CRL continues to adopt the Period 4 DCS v1.1 [REDACTED] to measure Programme performance. CRL is to validate Stations commissioning plans and critical resource management inputs to support the baseline schedule, together with T- Minus meetings to commissioning.

The Critical Path to Trial Running remains within the safety assurance process, which requires Safety Justifications (SJs) Acceptance through the clearance of Dependencies and the use of a supporting StEJ process for the Central Operating Section SJ (COS SJ). RfLI's assurance process requires CRL SJ Chapter completions to support its own RCAC/EAC and Trial Running Railway Assurance Case, leading, in turn, to the Crossrail Engineering Safety Assurance Case (CESAC). The Declaration of Control of Risk (DoCoR) certifies Duty Holder acceptance of a safe, assured and operable railway, and this provides the basis upon which the ORR permits Trial Running to start. Period 11 will determine whether the significant closure rate of Dependencies, which is reliant on the timely provision of supporting information, can be delivered by an under-pressure assurance team.

Stations schedule adherence dipped slightly this period, with Tottenham Court Road, Paddington, Custom House and Canary Wharf achieving less than 60%. CRL has maintained pressure on all Stations to achieve the SC3 milestone, allowing the T-12 countdown process to SC3 ROGS to start in [REDACTED]. Canary Wharf and Whitechapel Stations are yet to achieve the SC3 milestone. The Farringdon Station T-12 process to SC3 ROGS handover started as planned, on 27 November 2020.

Handover Delivery and Assurance

CRL completed formal handover of all Shafts and Portals, with Limmo and Stepney Green Shaft Handover on 9 December 2020 and 18 December 2020, respectively. Plumstead Depot and Sidings are now targeted for handover on 22 January 2021.

Four Stations achieved SC1 Enactment status. Liverpool Street and Woolwich Stations will start commissioning tests in Period 10, following the lessons learnt from the Farringdon Station 'dry-run'. CRL will focus efforts on the '3-wave' commissioning sequence, that aims to deliver integrated systems within the Stations and into start of operational use.

SIDT, Dynamic Testing, Trial Running and Trial Operations

Failures identified during the first SIDT period, will inform the next software build update that will be implemented for Trial Operations.

CRL and RfLI have agreed an approach to the Trial Operations Configuration. However, further work is required, particularly on isolation and possessions, to minimise risk for entry into Trial Operations.

Another step towards opening the Elizabeth Line is a governance change with the launch of the Trial Running Readiness Team, and the Passenger Service Readiness Team to follow.

Organisation Transition

The organisation for Trial Running has been developed. This originally identified an additional 164 roles, to be filled from CRL, the supply chain and RfLI, as well as by the extension of existing resource contracts [REDACTED]. CRL has also developed a Workforce Plan for the CRL organisation through to Programme completion and Passenger Service. Overall resource demand, final headcount and associated AFC is subject to further study by the CRL Executive.

1.4 Ongoing Concerns

Our wider concerns with delivery of the Elizabeth Line are set out below.

Stage 2B Operations

Since the software release in early December 2020, FLU performance operating on the GWML has improved as a result of a significant reduction in ETCS faults. However, until a further software release is implemented in February 2021, we expect ATP failures to continue.

Stage 3 – SIDT, Trial Running, Reliability Growth and Trial Operations

Rescheduling of Safety Assurance activities is resulting in resource concurrency adding pressure to the pivotal CESAC preparation by mid-February 2021. The mitigated schedule requires all Duty Holders (CRL, RfLI, MTREL and NR) agreement on operability, maintainability and performance for the DoCoR sign-off prior to ORR acceptance. This will require close engagement of all Duty Holders for Trial Running to start [REDACTED]. A Trial Running countdown readiness plan providing full transparency between CRL and RfLI is expected for implementation in Period 10. Key for resolution for entry to Trial Running is the ADM strategy that will inform roles and responsibilities under the CDM plan, [REDACTED]. Having the right resources available to maintain the pace required to achieve the [REDACTED] date will be an important factor. Given these pressures, we consider that [REDACTED] date for the start of Trial Running, is more credible than the current [REDACTED] target.

The identification, sequencing and completion of critical Dynamic Tests and Routeway Integration tests with sufficient re-test time to [REDACTED], will be a factor to complete the assurance process.

The full scope of works and criteria for exiting Trial Running and entering Trial Operations has yet to be finalised. Software update TR3.5, scheduled for August 2021 delivery to the Central Section, is the candidate configuration for entry into Trial Operations. The commitment to TR3.5 introduces some risk late in the Trial Running period, although delivery experience from similar software deployments gives confidence that this can be successfully managed. The risk lies in the timely provision of integrated safety assurance evidence, technical issues this deployment brings and their timely resolution. A further software release is planned during the Trial Operations period. Consequently, the [REDACTED] for Passenger Service start is now [REDACTED].

Failure to enter ROGS in [REDACTED] will delay the ability to deliver Stage 4A by [REDACTED].

Stations Assurance and Commissioning for Trial Operations

A CRL priority before Christmas 2020 was a focus on the achievement of SC1 Enactment for all Stations, as pre-requisite for Trial Running. While the schedule milestone dates are effectively based on achieving documentation sign-off, completion in practice is likely to drift into early 2021, with formal SC1 Enactment expected to take place in Period 11. Clear communication will be required across CRL teams to fully define the enactment process, and how restrictions through change and configuration control may impact work practices; this may also have AFCDC implications. Canary Wharf Station is scheduled in January 2021, as the last to achieve SC1 Enactment.

A Stations Bringing-into-Use plan is well developed, although this has yet to be fully integrated into DCS v1.1, with a full QSRA assessment to be completed. Bringing ■ Stations into use in 2021 will be a complex task; as yet, there is no indication that the durations will be sufficient for SC3 ROGS. Additional resources will be required for CRL and its supply chain to support the testing and commissioning teams, to avoid the conflicts of working on two Stations concurrently. A need for common competing Tier 2 and 3 resources will require close co-ordination between teams and might be better controlled centrally within CRL. Similarly, logistical planning to support congested, complex, and interrelated testing requirements in May 2021 will be a crucial success factor, but has yet to be developed. Resolution of complex integration issues required for Trial Operations, such as between the TVS and PSDs, continues to be a focus for the Station teams.

A review of the strategy for completing Bond Street Station ■ is in progress and is expected to complete by the end of Period 11.

Commercial and Risk

Drawdown against the £825m funding increase is expected to translate into Commitment Authority by Period 11. In the meantime, CRL continues to experience exceptional commercial pressure.

Period 9 reviews¹ indicate an increase across the project AFCs. At subsequent reviews², CRL reported an AFCDC increase to £15,910m, an overall Project AFC increase of £25m. A drawdown of ■ from Programme Risk and Allowances is reported, to offset the increase, such that the AFCDC as reported by CRL is £15,880m. At Period 9, CRL's AFCDC exceeds funding by approximately ■. However, of concern is the emerging potential of ■ cost pressures³, yet to be accounted for within the AFCDC. While CRL management will review this, it is expected to minimise this impact to ■ and ■. Current risk provisions are allocated, have limited allowance for contingency and no identified opportunities for savings. As CRL identifies further issues, and draws-down risk and contingency to offset AFCDC increases, the challenge to complete the Elizabeth Line within the funding threshold continues to grow.

Organisation

We are concerned that the resource requirements are not centrally co-ordinated and managed, and that this is resulting in uncertainty between resource requirements, and confusion for integration into the AFC budgets and DCS v1.1. Resources are required across a number of key areas: entry into Trial Running, Asset Data input, supply chain support to complete works and support to Trial Running through to Passenger Service, as well as training requirements for around 1,000 staff in the new ROGS operating environment. While change control governance is being demonstrated across the individual elements of Technical, Cost, Schedule and Risk, there appears to be a lack of co-ordination between the elements.

¹ Project Delivery Reviews 17 and 18 December 2020.

² Integrated Project Reviews 18 and 22 December 2020.

³ Executive Programme Performance Review Period 9 ending 12 December 2020, Part A/B on 5 and 6 January 2021.

⁴ ELDG meeting 12 January 2021.