



**Crossrail Project Representative**

**Crossrail Joint Sponsor Team**

**Sponsor Summary**

**Project Status Report 147**

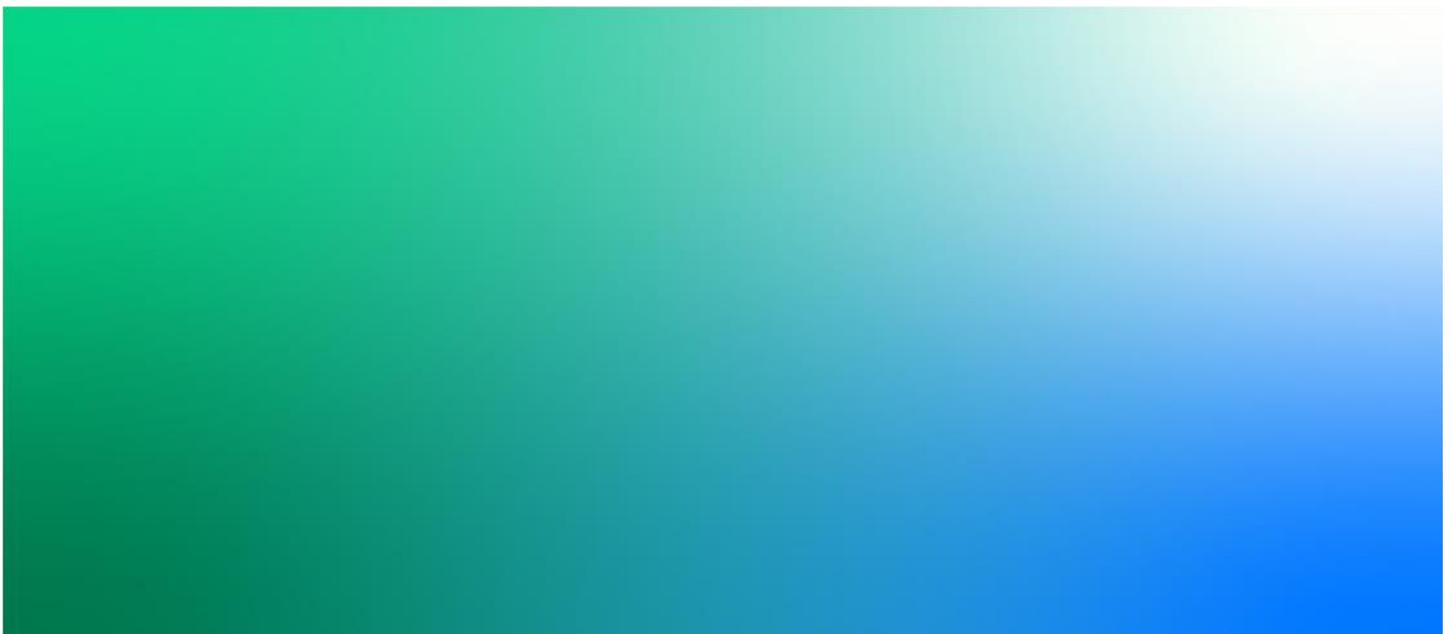
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## Sponsor Summary PSR 147

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Note: This report relies on the information set out in CRL's Period 11 reports augmented by more current information received by PRep during the course of our routine discussions with CRL since the Period close on 6 February 2021. Note that information emerging after the close of Period 11 is subject to formal confirmation by CRL in its Period 11 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.	1/3/2021	PSR 147 Period 11 FY 2020-21 Sponsor Summary v1.9 – Draft	██████	██████	██████	██████
2.	5/3/2021	PSR 147 Period 11 FY 2020-21 Sponsor Summary v1.10 - Final	██████	██████	██████	██████

## Sponsor Summary

### 1. Key Observations in the Period

All stations have now achieved SC1 Enactment required for Trial Running, and final testing of software configuration TR2 Point Release 6 has confirmed the correct operation of Automatic Route Setting across the GWML interface; all signalling functionality agreed for entry into Trial Running has now been completed. CRL's and RfLI's commitment to achieving ROGS and entry into Trial Running by [REDACTED] is evident in the commencement of joint T-minus countdown readiness meetings; however, CRL performance indicators suggest this might be optimistic. The movement of the [REDACTED] date to [REDACTED] indicates CRL has an increased level of confidence, if the current Trial Running target date is missed, that the Trial Running milestone may still be achieved within a 5-week period of the [REDACTED].

We expect a judgement to be made in [REDACTED] which balances the benefits of Trial Running "achievement" on [REDACTED] against those of a later date, which is driven by the practical difficulties of completing outstanding pre-Trial Running works under ROGS, the safety-assured state of the railway and the true readiness of all organisations to take on their new roles. Given the many and varied influences on the commitment decision, the outcome is difficult to predict.

The T-minus countdown started at T-[REDACTED] on [REDACTED], with further meetings planned at T-[REDACTED] and T-[REDACTED]; these will be supported by intermediate 'deep-dive' meetings to resolve actions. Good collaboration is evident between CRL and RfLI, and topics covered include CRL's responsibilities for HSQE, Assurance, People and Delivery, and RfLI's responsibilities for Operations, Maintenance, Fleet, MTREL and Business Management.

Completion of the safety assurance process remains the key activity for entry into Trial Running and the process has become more complicated since the last Period. Both CRL and RfLI assurance teams have a significant task to complete Safety Justifications (SJs), clear Dependencies and resolve open issues, for final CESAC Acceptance by RAB(C) on 11 March 2021. Issues affecting completion include CRL's later completion of Safety Justifications, and a slower than planned Dependency closure rate as a result of a decline in the rate of evidence-processing; this has led to an erosion of the remaining week of schedule float. Similarly, CRL's late completion of its ECHR continues to exert pressure on RfLI's assurance process and documentation for its RCAC/EAC and TRRAC, due for 11 March 2021. With continued slippage, there is increasing risk of concurrency with safety assurance documentation production leading up to Trial Running in [REDACTED].

Critical issues and actions arising from the T-[REDACTED] review indicate that there are still significant works for both CRL and RfLI to complete that will require an intense co-ordination effort in a short period. Both parties are working to reach agreement on key items related mainly to process and procedures for working under ROGS, ahead of the T-4 'Go/No-Go' review. These include: resolution of electrical interfaces between Stations and Routeway, clarity on the process for isolations and possessions, and agreed plans for commissioning and maintenance of the NR interfaces. Other areas of concern include: training of contractor resources in sufficient quantities to cover safety supervisory roles, as well as ensuring alignment of supply chain procedures with RfLI's Rule Book. The ability of both parties to reach an acceptable position on the outstanding issues will determine if transition into ROGS is achievable on [REDACTED], and whether [REDACTED] remains a viable date for the start of Trial Running. As works on the railway are restricted in the first four weeks of Trial Running to allow RfLI mobilisation, this may provide valuable time for CRL to mitigate the situation.

We are concerned that the outstanding programme of works to complete is increasing in volume as a consequence of Dependency and other close-out actions, and deferral of works into the Trial

Running period. Taken together with indications of lower than planned performance across RfLI Stations and schedule pressures developing in the Stations delivery, there is the potential for impact on the start of Trial Operations. We observe no obvious CRL adjustment in delivery cost for the extended delivery period, where access under ROGS will represent an increased regulated and constrained working environment.

A revised approach to the ADM was proposed at the ELDG<sup>1</sup> for the Stations Close-Out Delivery Strategy. This new strategy, and the resulting procurement and contracting strategy, is intended to provide a clearer separation between pre-Revenue Service works [REDACTED] and post-Revenue Service works [REDACTED].

The implementation and enforcement of CRL's Change Management process in the period is a positive development. Further refinement to include a Change Control Panel is likely, and may need at least a further period to embed into Project teams before the process starts to yield scope and cost benefits.

We are encouraged that CRL's Executive Management completed a systematic review of the Programme Level 1 risks. This will provide a robust view of its risk mitigation plans, clarity on emerging issues, minimisation of unknown items and a realisation of potential risk money through retirement of risks. A similar exercise is also required for the Level 2 risks.

At Period 11, CRL is reporting an excluded cost pressure to the AFC, reduced from a potential [REDACTED] to [REDACTED]; [REDACTED] of this has been identified by CRL as potential offsets, leaving an estimated pressure of [REDACTED] to the Programme AFCDC. CRL's Executive recommended<sup>2</sup> to hold the ADFDC at £15,885m for Period 11, while it continues to address the emerging issues and validate to a point of maturity. The uncertainty of provisions, increased pressure on the CEO contingency and the [REDACTED] cost pressures not included in the Period 11 AFCDC, indicate that the forecast may be understated.

With the Workforce Plan formerly endorsed by CRL Executive and Programme Authority approved by the ELDG, CRL can extend resource contracts from the [REDACTED] to [REDACTED]. The speed of implementation will be important to provide much-needed confidence to the resources. From the end of [REDACTED], CRL's intent is to secure key knowledge, skills and experience for the remainder of the Programme, with a smaller team.

While we note CRL's letter<sup>3</sup> and its contents, based on our Period 11 status report, we recommend that the following questions are considered by Sponsors and the CRL Leadership Team:

- 1) How will CRL ensure emerging cost pressures are fully transparent and accounted for in the risk management process?
- 2) How can CRL demonstrate confidence that the start date of Trial Operations is not impacted by the outstanding workload to complete after entry into Trial Running?

<sup>1</sup> Elizabeth Line Delivery Group Meeting 4 February 2021.

<sup>2</sup> Executive Programme Performance Review, Period 11 ending 6 February 2021, meeting on 24 February 2021.

<sup>3</sup> CRL letter: Crossrail PRep Project Status Report 145 Period 9, dated 28 January 2021.

## 2. Health and Safety

Four High Potential Near Misses occurred in Period 11 and, while the Safety Performance Indicator increased slightly, the overall indicators remain within those set by the Programme. SHEL101 in March 2021 will reset the Programme to reflect the change in focus from construction to operations and maintenance. CRL continues to be vigilant during the Covid-19 'third wave', ensuring delivery resilience through the safeguarding of key resources and critical operational assets.

## 3. In-Period Progress Overview

### 3.1 Recovery Plan and Schedule

The DCS v1.1 [REDACTED] continues to be used for CRL Programme performance measurement, and is occasionally modified to reflect mitigations which seek to maintain current target dates. A schedule refresh initiative is expected in Period 1, resulting in DCS v1.2, which is anticipated to include lessons from the Routeway assurance process and Stations commissioning, as well as resource management inputs, critical signalling software updates and RfLI's new ITAP change process.

The Critical Path to Trial Running remains within the safety assurance process and [REDACTED] will be pivotal for the achievement of ROGS. CRL's key critical activities relate to the clearance of Dependencies, and the handover of Element Completion Handover Reports (ECHR), which are necessary for RfLI to complete its Routeway Chapter Acceptance Case and Element Acceptance Case (RCAC/EAC) and Trial Running Readiness Assurance Case (TRRAC). The delivery by CRL of the COS SJ and CESAC in mid-February 2021 is heavily reliant on the status of the supporting Safety Justifications and their associated Dependency close-out. Thereafter, the Duty Holders must demonstrate, through the Declaration of Control Risk (DOCOR), their readiness for transition into ROGS and entry into Trial Running.

Only Bond Street and Canary Wharf Stations have yet to receive SC3. Paddington was the last station to receive SC1 Enactment on 15 February 2021, and all stations are now ready for entry into Trial Running. The Critical Path to Trial Operations remains through the completion of SC2 at Bond Street Station, and the assurance of signalling software configuration ELR100, with a final update to COS SJ, CESAC and DoCoR, to take account of the completion of SC3 ROGS at the RfLI and LU Stations.

### 3.2 Handover Delivery and Assurance

The Plateau 2 team is working well to implement the Stations Commissioning Strategy, and commissioning and BIU processes continue. Farringdon Station was assessed at T-4 to be on target for SC3 ROGS handover to LU on [REDACTED]; similarly, Custom House Station handover to RfLI is scheduled for the end of March 2021. Tottenham Court Road Station passed its T-12 assessment and, with Liverpool Street Station, is currently maintaining schedule for BIU commissioning activities.

CRL has removed Woolwich West, Bond Street West and Liverpool Street Station Shafts from the declared configuration state for the start of Trial Running. This will allow implementation of [REDACTED], prior to the start of Trial Operations. In the meantime, slow progress with PIRs and delays in the submission of final noise reports to the Local Authorities are a concern.

With a change in the schedule logic implemented by CRL to avoid Asset Data Drop completing in April 2021, the handover status of Plumstead Maintenance Facility is unclear. CRL and RfLI are yet to fully mitigate and agree the state of readiness of handover against its assurance status.

### 3.3 SIDT, Dynamic Testing, Trial Running and Trial Operations

Preparations for Trial Running readiness have highlighted<sup>4</sup> the criticality of supply chain resource and RfLI maintenance team training, particularly given the risk of Covid-19; maintenance readiness is linked to the availability of Asset Data, which RfLI teams use to assign work schedules. Preparations for Trial Operations continue, and the Passenger Service Mobilisation Board and the Passenger Service Readiness Team are expected to come into effect immediately after the start of Trial Running.

The performance data produced from both OST and SIDT has provided enough evidence to show that the entry into Trial Running criteria for reliability have been met<sup>5</sup>. With SIDT scheduled to run until mid-March 2021, it continues to provide early beneficial opportunities for the resolution of unforeseen operational issues and the building of RfLI operator confidence. Currently, the timetabled operation of up to 8 trains is achieving approximately 90% of planned mileage; while software updates have resolved two faults, the resolution of extended sectional run times remains outstanding.

Stage 4A Steering Group provided a 'Go' with identified risks for Stage 4A in [REDACTED]. MTREL will operate the Stage 4A timetable to coincide with the [REDACTED], following a review of configuration options for start of service. Access for maintenance to Old Oak Common Depot through the Central Section will restrict initial passenger operations to 4 FLUs, and alternative rolling stock transfer arrangements are under investigation.

### 3.4 Stage 2B Operations

FLUs operating on the GWML have maintained an adequate performance, arising from fewer ETCS faults. The second software release is due to be deployed by the end of February 2021, at which point there will be service capability to operate 4TPH to Heathrow.

### 3.5 Organisation Transition

ELDGs<sup>6</sup> approval of a [REDACTED] increase to the Indirect Cost Forecast since the DCS v1.1 baseline was established represents an increase of [REDACTED] for the latest [REDACTED]; this enables CRL to fund the Indirect resource costs through to [REDACTED]. This additional Programme and Project Authority will also allow CRL to secure key knowledge, skills and experience for the remainder of Programme delivery. CRL recognises the importance of efficient communication of contract extensions to provide confidence and minimise departures. In parallel, CRL is also finalising its risk exposure with those key resources that are likely to be impacted by the enforcement of IR35 rules in early April 2021. It is currently working with its supply chain to identify key resources who might be impacted, and establishing mitigation plans as necessary. This represents a key threat to delivery.

CRL's endorsement of the Workforce Plan and ELDG's approval of funding allows the start of management and administration transfer to TfL, for completion by the end of March 2021. TfL needs to maintain transparency on resource requirements through to Passenger Service.

<sup>4</sup> T-6 Trial Running Readiness Review 16 February 2021.

<sup>5</sup> Elizabeth Line Reliability Board endorsement 2 February 2021.

<sup>6</sup> Elizabeth Line Delivery Group meeting held on 4 February 2021.

## 4. Ongoing Concerns

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

Following further refinement of schedule logic, a change in process and a second StEJ round, and the complex assurance process, Period 12 is now expected to be a defining period in completing the safety assurance for the railway. There remains significant stress in the assurance process, particularly in forming the CESAC submission for 19 February 2021. Closure rate of Dependencies and the slow rate of supporting evidence information is affecting CRL's and RfLI's ability to complete assurance documents. With the process requiring intense co-ordination and management focus, a Programme assurance 'freeze' was held on 12 February 2021 to assess the status of the various components required to support pending key documents for CESAC and TRRAC, and for joint assessment at the T-5 review.

The T-4 'Go/No-Go' meeting is expected to confirm the viability of achieving the targeted Trial Running start date of [REDACTED]; however, CRL performance indicators suggest this might be optimistic. The movement of the [REDACTED] date to [REDACTED] indicates CRL has an increased level of confidence, if the current Trial Running target date is missed, that the Trial Running milestone may still be achieved within a 5-week period of the [REDACTED].

The Blockade planned for August 2021 is driven by the need to install and test software configuration ELR100 for entry into Trial Operations. There will be significant pressure during the Trial Running period, but particularly in [REDACTED], to deliver final assurance for the signalling software, build reliability and identify any unexpected issues that might affect entry into Trial Operations.

Poor EOWL completion at stations, combined with the emergence of new items, has resulted in a significant number (approximately 4,500) yet to be completed between the start of Trial Running and Trial Operations. The EOWL closure rate related to Routeway, Shafts and Portals is also a concern, which will require outstanding works to be completed during the Trial Running period. This is in addition to previously reported works associated with TVS modifications, PSD rectification and Possession and Isolations management systems. While CRL is establishing a plan for completion ahead of Trial Operations, we remain concerned the impact that this significant volume of work may have on the Trial Running period. Finalisation of scope is also required for clarity on the contract close-out strategy and timing of the departure of the Tier 1s that will also benefit the Programme financial position.

### 4.2 Stations Assurance and Commissioning for Trial Operations

Schedule adherence has marginally improved in the period for the RfLI and LU Stations, with the exception of Liverpool Street and Tottenham Court Road Stations. Paddington Station schedule adherence is generally poor and, while it entered its T-12 process, its BIU is at risk of delay. Close management attention is necessary to minimise impact on the delivery of the subsequent stations. Additional stations that are of concern include: Whitechapel Station to finalise definition of scope post-SC3 ROGS; Canary Wharf Station to complete its schedule to SC3 ROGS, and Bond Street Station to conclude a detailed schedule to achieve SC2 Enactment. Four new contracts for Bond Street Station are also required for award by end of Period 12. Until then, it is unclear whether the schedule is fully underpinned by the supply chain and, while station schedule is a risk, its AFC is also threatened. Woolwich Station has shown a worrying trend of a period-on-period increase in AFC. This is anticipated to be subject to further increase due to ongoing additional scope requests and the resolution of noise issues, which have yet to be designed and costed.

### 4.3 Commercial and Risk

CRL has increased focus and transparency in respect of its cost and risk analysis and reporting. The Period 11 AFDCD increased by ██████ to ██████ due to emerging pressures arising from the in-period IPR and PDR reviews. Of this ██████, CRL is proposing to offset ██████ from risk, overlays and the scope gap provision, and fund the remaining ██████ from the CEO reserve, to maintain the Period 11 AFDCD at £15,885m. The proposed drawdown on CEO reserve significantly reduces the contingency allowance to ██████, of which ██████ is reserved for potential issues arising at Bond Street Station. As a consequence of CRL's proposed drawdowns and offsets in Period 11, contingency trends indicate that prolongation excluded allowances are already spent and, if prolongation is included, will expire approaching Period 1 2021-22.

At Period 11, the AFDCD remains ██████ in excess of current funding of £15,789m. CRL reported<sup>7</sup> ██████ in delivering Crossrail within the current funding, though an improvement to ██████ was reported at ELDG<sup>8</sup>. Consequently, we believe that it is unlikely that CRL will be able to deliver the Elizabeth Line within the £825m funding increase. CRL's Period 11 CTG forecast, which includes ██████ of risk and contingency items accounting for uncertainty, risk and additional commitments over and above Direct and Indirect costs, is expected to exceed the current funding threshold around Period 2 2022-23. However, these projections are conservative, as they exclude the current ██████ cost pressures noted in this Summary.

### 4.4 Organisation

It is encouraging that CRL has started implementing its Change Management Process in the period. However, further refinement is expected, including the implementation of a Change Control Panel, and understanding within the project teams might benefit from additional engagement and communication. Currently, the process seems to be focused on emerging scope, but it is anticipated that it will also address existing scope that is yet to be formalised into instructed works.

Complications are likely with the implementation of RfLI's new Change Assurance Framework (incorporating CAP and ITAP) after transition into ROGS. The integration of RfLI's ITAP with CRL's Change Management Process requires further clarification but, importantly, project teams' full understanding of the new ITAP system will be necessary, as the submission and review timescales are longer. However, a benefit is that current RAB(C) members and attendees will remain engaged in the ITAP process when RAB(C) no longer acts for CRL. There will also be no change to the System Authority representative until ██████, when CRL anticipates it will complete delivery for entry into Trial Operations.

<sup>7</sup> Executive Programme Performance Review, Period 11 ending 6 February 2021, meeting on 24 February 2021.

<sup>8</sup> Elizabeth Line Delivery Group meeting held on 4 March 2021.