



RESPONSE TO THE CROSSRAIL SPONSORS ON THE PROJECT REPRESENTATIVE SPONSOR SUMMARY REPORT – PERIOD 09 REPORT

Date of Issue (this paper): 30 January 2020

Issued to: Simon Adams, Head of Crossrail Joint Sponsor Team - Transport for London

Author: Liam Hewitt, Head of Reporting – Crossrail. [REDACTED]

Approved by: Mark Wild, Chief Executive Officer – Crossrail Ltd

1. Purpose

- 1.1. The purpose of this paper is to provide the Crossrail Sponsors with Crossrail's response to the Project Representative's ("**PRep**") Sponsor Summary report. It has been produced in consultation with Crossrail subject matter experts. A list of consultees is attached as Appendix 1.
- 1.2. The report responded to in this paper is the Period 09 FY2019-20 (10 November 2019 – 07 December 2019) report, issued and received on 14 January 2020.
- 1.3. To ensure Crossrail's comments can be mapped accurately to the PRep's comments, each header (typed in **bold**) has the relevant PRep paragraph reference number in brackets. For this Period, Crossrail has annotated the PRep's report to include paragraph references. This annotated report is attached as Appendix 2.

2. Opening Statement from the Chief Executive Officer of Crossrail Ltd

- 2.1. Sadly, I must start with news about the death of a colleague from Liverpool Street station. Saeedd Tahmasebi, a Laing O'Rourke engineer, lost his life in the Ukrainian plane crash in Tehran on 08 January 2020. Our thoughts are with his family and friends.
- 2.2. Crossrail has had an energetic start to the new year. While in the course of responding to the Project Representative's reports we must comment from the perspective of a time some weeks ago, the context of where we are today and the events that have transpired are vital in understanding the direction we are taking.
- 2.3. On 09 January 2020, the Crossrail Board accepted my Executive team's commitment to enter in Trial Running on or before Autumn 2020, enabling Stage 3 services to commence in Summer 2021 with increasing confidence that Bond Street will be ready to open with the rest of the central section. This is an exciting opportunity for all of Crossrail to unite and drive together. It also provides a focus for our efforts, allowing us to identify what needs to be done by Trial Running, and to tailor our performance metrics and schedule to a specific date; something the Project Representative rightly highlights as being critical to inspiring confidence from our Sponsors.

2.4. Cutting-edge delivery plans are being implemented that will enable Crossrail to enter into Trial Running by Autumn 2020, and this response will provide an insight into how we are delivering the Elizabeth line.

3. PRep Key Areas of Concern in the Period

3.1. The PRep highlighted one key area of concern for Period 09 (*Reference: 14.1*). Crossrail's comments are provided below.

PRep Concern: "The exercise to incorporate: i) Change from planning to targets, to realistic forecasts; ii) Categorisation of the outstanding EOWs for Trial Running; and iii) Inclusion of 'known-unknowns', such as NCRs still to be raised, will all have an impact on the planned date of [REDACTED] for ROGS. What assurances can CRL provide to Sponsors on the robustness or confidence in this date?"

Crossrail Response: Work is ongoing across the programme to develop and integrate the intelligence that will enable Crossrail and its Sponsors to robustly monitor and interrogate performance, and provide early identification of potential performance issues.

It is important to understand the context of EOWs within the programme. A major driver of delays in Handover and SC3 of Stations, Shafts and Portals is achieving a final agreement between Crossrail and RfL/LUL of the final detailed lists of outstanding works (EOWs) for each element, and the definition of the minimum needed to enter Trial Running. While the clarity of this exercise is developing, having a date for entering Trial Running enables all parties to focus and plan [REDACTED]; this focus increases the pace with which clarity is gained.

An ongoing, daily joint review is now taking place between all parties (CEG/RfL/LUL) to determine the minimum requirements list for each project – 'what' needs to be completed. A second stage to this review also determines 'when' the work needs to be completed (before Trial Running, before entry into passenger service, or later) and 'how' it will be carried out (Tier 1, Infrastructure Manager or Alternative Delivery Model). By mid-February 2020, all final EOWL lists and scopes will be prioritised and allocation of work agreed.

Additionally, underpinning evidence to support DCS forecasts is included within the ongoing KPI tree development work, which will continue to improve with all key projects putting in place projections through Period 11. A schedule reporting process detailing key schedule movements has been in place for 3-4 periods, in the form of the schedule forecast variance report, with confirmation of the status and justification for significant changes in forecast. Production forecasts of key performance indicators for Shafts, Portals, and most Stations exists and a thorough review of Routeway Chapters will result in production forecasts by the end of Period 11.

Finally, a series of integrated alignment workshops are underway to review key sections of the DCS to provide greater confidence in the robustness of the DCS. These cover Integrated Assurance and Handover; Shafts and Portals; Routeway; Trains and Signals; RfL Stations; and LU Stations. Submission of outputs to the February Crossrail Board is planned. This will provide the Sponsors with confidence in the robustness of the date and the data.

4. Matters necessitating Crossrail comment

- 4.1. Crossrail has the following comments on the PRep report, in a repeated order to the PRep's Sponsor Summary report.

HEALTH AND SAFETY PERFORMANCE *(Reference: 1.0)*

- 4.2. The positive response from the contractors to recognising, owning and improving their HSPI scores has been closely monitored by the Crossrail project teams and Safety Health Executive Leadership Team (SHELT) members. Scores are being assured and scrutinised to provide confidence in performance reporting.
- 4.3. Crossrail has adjusted one of the level 3 incidents to level 2, resulting in there being eight HPNM's in the period. A common theme in these incidents is operatives returning to complete snagging works; Crossrail's focus to address this trend is therefore on i) getting things right first time, and ii) planning snagging/defect works properly.
- 4.4. The healthy reporting culture enables immediate and root causes to be identified through the Client Serious Incident Event Review (SIER) procedure. The contractors are held to account for a robust investigation. The H&S Reporting and Improvements team are conducting programme trend analysis and will be presenting this new work to SHELT 87 in February.

PREDICTABLE PERFORMANCE *(Reference: 2.0)*

- 4.5. To reduce duplication, Crossrail's main comments have been included in its response to the PRep's Key Area of Concern *(Reference 14.1)*.
- 4.6. A Stage 3 opening date of Summer 2021 has been communicated externally and [REDACTED]. Aspects of the schedule are being reviewed, challenged and improved through a series of DCS alignment workshops during Period 11.

HIGH LEVEL SCHEDULE SUMMARY *(Reference: 3.0)*

- 4.7. The proposed eight interventions around performance to deliver the Period 09 forecast schedule are targeting key root causes of milestone slippage and aim to address these causes in a manner where the learning is embedded programme wide. These interventions were discussed and agreed within Crossrail in early January. These are now being implemented during Period 11 – including the launch of Integrated Delivery Teams – enabling quicker and more devolved decision making closer to the source of issues. Additionally, a programme-wide assumptions and mitigations tracker has been created and introduced, and will be fully built out during January 2020. This tracker will allow an integration of interventions that enables greater effectiveness of measures, and greater foresight of when interventions start to falter.

CRL 3 LINES OF DEFENCE *(Reference: 4.0)*

- 4.8. The overdue critical documents and procedures list has reduced in the last period and those that remain outstanding are not affecting progress. The fluid and dynamic nature of the project means that certain key areas of activity, not least schedule management, continue to evolve to reflect this.

- 4.9. It should be noted that the RfL review arrangement was only expected to be in place for the initial handover and to address potential historic anomalies. The plan is that RfL will move to a sample based review in February after the quality audit.
- 4.10. It is positive that Crossrail's internal assurance is identifying matters through its Periodic Assurance Reviews (PARs) that align with the PRep's view. Crossrail notes the insights of the PARs and they continue to form a basis of Board, Executive and management discussion and action.

COST, COMMERCIAL & RISK (*Reference: 5.0*)

- 4.11. Crossrail agrees with PRep that the AFCDC reported in the Period 09 Board Report showed no deviation to the previous period. A full analysis of the Period 09 AFCDC was completed after AFC reviews on 17 December, but, as flagged in advance to the Board, was not able to undergo the necessary levels of scrutiny and rigour due to the timing of the holidays. This includes analysis of the 'in period' overspend against forecast which were entirely covered by cost and risk provisions.
- 4.12. Analysis of Period 10 AFCDC will be made with reference to Period 08 in order to ensure that all relevant movements are noted.

Stage 2B (*Reference: 6.0*)

- 4.13. Crossrail notes the PRep's comments.

STAGE 3 (*Reference: 7.0*)

- 4.14. To reduce duplication, Crossrail's main comments have been included in its response to the PRep's Key Area of Concern (*Reference 14.1*).
- 4.15. Additionally, Crossrail is implementing cross-functional teams (Integrated Delivery Teams - IDTs) to each of the 23 projects to plan and deliver the work efficiently. In parallel, all the assurance and handover documentation is now being planned against the minimum requirements for handover and Trial Running, supported by new burndown KPIs.

APPROVALS, ASSURANCE AND AGREEMENTS (*Reference: 8.0*)

- 4.16. Crossrail agrees with the PRep's comments, noting that the expected list of submissions to RAB-C needed to support Trial Running was reviewed and agreed with the panel members. The nursery Portal submissions (VDP, PML) were accepted with dependencies, the lessons learnt are being applied to the next portal as ROP. The nursery shaft SJ submission for MES was accepted with the TVS/Door related issues as a dependency holding final RAB-C acceptance. The nursery station SJ submission for CUH house been to several RAB-C meetings due to outstanding dependencies relating to physical works, such as the stopping location/platform issue.
- 4.17. Additionally, an increased focus on DSR closure over the previous period saw the rate of closure slightly increase.

RAIL SYSTEMS & DYNAMIC TESTING *(Reference: 9.0)*

- 4.18. Crossrail built a plan for the execution of Trial Running based on key assumptions regarding the amount of residual construction and testing to be delivered in the Trial Running phase. The [REDACTED] Trial Running plan contains flexibility to maximise timetable running but the residual works reduces mileage opportunity; therefore it includes significant risk around delivering reliability within the [REDACTED] window as train mileage is sub-optimised. Opportunities to de-risk reliability growth in the trial running phase were identified. These in large part focus on increasing train mileage prior to Trial Running. The Dynamic Test plan now includes “performance benchmarking” tests which have provided additional mileage. ATC will submit a proposal to modify their ROGS exemption to allow a maximum of eight trains under the CCRRB.
- 4.19. Mega Plan 2 is the plan for dynamic testing up to trial running not the plan for mobilising trial running or opportunity realisation for extra mileage. The Dynamic Test plan does however contain windows for increased mileage under a “performance benchmark” test script and is linked to the DCS.
- 4.20. The Trial Running mobilisation plan is being matured under the End-to-End workstream.
- 4.21. Planning is not showing additional slippage of the Trial Running date. The schedule risk is in the Trial Running phase. Planning for this phase can only be finalised as the residual scope of construction, software drops etc are finalised and can be planned in. Dynamic testing and Construction planning is focussed on minimising residual scope to maximise the available time for timetable running in Trial Running.
- 4.22. The Multi Train Testing submission for week 37 testing was not approved at short notice requiring a complete re-plan of dynamic testing from that date until the new Dynamic Test plan is issued on the 29 January. The new plan delivers testing sufficient to support the ESJ submission with conditions by the 12 March and all testing necessary to close the conditions complete by 10 May. This supports the DCS Trial Running date. The test completion rate against the re-planned test windows since week 37 has been 82% (including 48% in week 37) and 88% since week 38.

RELIABILITY GROWTH *(Reference: 10.0)*

- 4.23. Crossrail’s model for system performance (TRAIL) indicated in December 2019 that 90 minutes MTBSAF would generate a system performance of circa 55% PPM and be adequate to start Trail Running although likely to be disruptive. Fixes scheduled for Y0.600 (P_D+12) and beyond were expected to deliver this performance and beyond.
- 4.24. More detailed modelling in January 2020 (Period 09) suggests a higher performance will be delivered from Y0.500 (P_D+11). This revised model is based on more granular information gained from observations in dynamic testing. Y0.500 is now being tested in the central section but full validation of its performance requires significantly more mileage. This increased mileage becomes possible in the period that has opened up as a result of the delay to the start of Trial Running. The Reliability Team has been working closely with Test and Commissioning to secure extensive mileage as part of the ‘Mega Planning’ process.

STAGE 5A SUMMARY (*Reference: 11.0*)

- 4.25. Crossrail would like to highlight that the introduction of Stage 5A services was also due to the collaboration of BT.
- 4.26. The swap from RLUs to FLUs will require an update to, and approval of, the FLU software which is forecast for February and the introduction of FLUs on the GWML will be coordinated with the objective of introducing FLUs to Heathrow ahead of the May timetable change. RfL and MTREL are now in that planning process.

STAGE 5B OPENING; STAGE 4 & 5 SUMMARY (*References: 12.0 & 13.0*)

- 4.27. Crossrail notes the PRep's comments.

END

APPENDIX 1 – LIST OF CONTRIBUTORS**RESPONSE TO THE CROSSRAIL SPONSORS ON THE PROJECT REPRESENTATIVE
SPONSOR SUMMARY REPORT**

Period 09 FY2019-20 (10 November 2019 – 07 December 2019), issued and received on 14 January 2020.

Advisor to the CEO
Chief Finance Officer
Chief of Staff
Commercial Director
Communications Director
Cost Engineer (Project Delivery)
Crossrail Operations Business Manager
Deputy Chief Executive Officer
Deputy Programme Controls Director
Head of Assurance
Head of Employee and Supplier Communications
Head of Programme Delivery Strategy
Head of Project and Programme Assurance
Head of Reporting
Head of Risk
Head of Systems Integration
Health and Safety Director
Programme Controls Director
Programme Delivery Business Manager
Programme Director
Programme Transition Director
Supply Chain Delivery Director
Testing and Commissioning Director

APPENDIX 2 – ANNOTATED PREP REPORT

RESPONSE TO THE CROSSRAIL SPONSORS ON THE PROJECT REPRESENTATIVE SPONSOR SUMMARY REPORT

Period 09 FY2019-20 (10 November 2019 – 07 December 2019), issued and received on 14 January 2020.