



RESPONSE TO THE CROSSRAIL SPONSORS ON THE PROJECT REPRESENTATIVE SPONSOR SUMMARY REPORT – PERIOD 11 REPORT

Date of Issue (this paper): 26 March 2020

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

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Approved by: Mark Wild, Chief Executive Officer – Crossrail

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 11 FY2019-20 (05 January 2020 – 01 February 2020) report, issued and received on 02 March 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. We find ourselves now in unprecedented and extraordinary times. We are in new territory with the impact that Coronavirus (COVID-19) is having in the UK and world-wide, and now more so than ever the health and safety of every person working on this project must be the most important thing we consider in everything we do. Essential and business critical work will continue across the Crossrail programme, but our priority is to keep our people safe and limit movement across our sites.
- 2.2. Crossrail officially stood up its Gold Response Team on Thursday 12 March, and we are considering the protection of our people and of the programme as part of this through daily meetings and we are aligned with Transport for London. With our people being the most important part of delivering the Elizabeth line, we have increased the level of communication and engagement, and we are actively supporting new ways of working. We are doing everything we can to support our contractors during this difficult and challenging time and we will do what we can to keep our individual sites open and productive as best as we can. Our arrangements remain under constant review and we are liaising closely with our Tier 1 contractors and their supply chains to ensure that the Crossrail programme continues to be delivered safely.

- 2.3. While we are doing everything we safely can to keep the programme on track, COVID-19 will have an impact – it's too early to tell what that impact will be, but our Gold Response structure is working hard to best assess this.
- 2.4. Much of the central section is now substantially complete, with the major focus on completing software development for the signalling and train systems along with safety assurance certification for the railway. Much of this technology and assurance work is undertaken remotely by our supply chain across the UK and Europe. The key focus for Crossrail is completing software development for the signalling and train systems along with safety assurance for the railway so that Trial Running can commence at the earliest opportunity.
- 2.5. We will see in time the effect on the programme and the delivery of the Elizabeth line of COVID-19.. As always, we will be fully engaging with the Project Representative to ensure the new ways of working which we are having to adopt allow continued and full engagement.

3. PRep Key Areas of Concern in the Period

- 3.1. The PRep has highlighted an overarching concern regarding the achievement of [REDACTED] Trial Running. In doing so, the PRep references that the benefits of certain interventions and initiatives have not been realised yet.
- 3.2. Crossrail does not disagree that the benefits have not yet been fully realised, and it has always been expected that these interventions would take time to meaningfully complete and affect the programme. The interventions raised by the PRep have been discussed explicitly in the detailed responses below.
- 3.3. [REDACTED] and while there have undoubtedly been challenges in the delivery of the programme our Period 11 assessment determined that it remained possible to achieve it. Since Period 11, the programme is now managing the developing impacts that COVID-19 will have and there will likely be an impact.

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. There are a number of ways in which the programme shares best practice. The contractors attend and present at the Crossrail Learning Forum and Safety and Health Executive Leadership Team meetings. The Crossrail Health and Safety Assurance audits always report best practice and shares this. Alerts, Bulletins and Briefings are shared from the Crossrail Rivo reporting system. The Executive Leadership Engagement visits also discuss and share the best practice they hear about.

INTEGRATED DELIVERY TEAMS (IDTs) (Reference: 2.0)

- 4.3. The Integrated Delivery Teams (IDTs) are still in the 'forming and norming' stage and suitable interventions are being put in place to ensure the IDTs have every chance to succeed and get the remaining elements handed over in line with the schedule.

- 4.4. Handover resources have been identified for each location and an additional set of Infrastructure Manager resources are being brought in to reinforce and strengthen the IDTs. These will be in place in by the middle of March. A daily performance management call has been established to help drive decision making and escalate issues from project level, particularly for those that are in the 'priority order' (namely Routeway, Shafts and Portals).
- 4.5. Attendance from Technical, Delivery and Operations is critical to the success of this structure and improvements will continue to be made to this to ensure any major bottlenecks are removed. An exercise to review the current issues with the escalation process and authorising appropriate levels of delegated authority for the Principal Delivery Engineers, Project Managers and Infrastructure Manager representatives is underway and will be completed by mid-March.
- 4.6. Furthermore, overarching guidelines and rules of engagement have been distributed to the IDTs to clarify current delegated authority; three engagement briefings with the Crossrail Senior Leadership Team have been organised with a monthly touchpoint programmed going forward up to Trial Running; the Crossrail Senior Leadership Team have been allocated as sponsors for individual IDTs to help address key blockers and identify best practice; and further clarification on rules / responsibilities, escalation routes and key behaviours will continue to be issued and communicated to the IDTs throughout the next period.

ELEMENT OUTSTANDING WORKS LIST (EOWL) PRODUCTION *(Reference: 3.0)*

- 4.7. The IDTs have been tasked with owning the triaging of their own Element Outstanding Works Lists (EOWLs) and have been provided the instruction and principles to manage this. Where there are inconsistencies between elements, a further deep-dive has been conducted to provide further coaching and guidance for completing the triage effectively.
- 4.8. The two examples provided are no longer legitimate as Woolwich now has 44 EOWL items identified for post-revenue service (which is 33% of their total) while Farringdon and Liverpool Street now have similar levels of EOWLs (Farringdon 499 Liverpool Street 544).
- 4.9. The IDTs have now all confirmed that their EOWLs have been triaged as per the instruction and principles, while also confirming that processes are in place to ensure their effective management of triaging in the future of new items.
- 4.10. The EOWLs are currently being baselined with all stakeholders to definitively set the scope. It is acknowledged that due to further Verification Activity Plans, as well as testing and commissioning, that the volume of EOWLs is expected to increase from this baseline. However, a process is being drawn up to proactively monitor and review changes to this baseline which does not impede on the IDTs autonomy or create unnecessary distraction from closing the EOWL items themselves.

ALTERNATIVE DELIVERY MODEL (ADM) *(Reference: 4.0)*

- 4.11. Principles of what can be transferred, along with other information on how the alternative delivery model will work, was issued as part of the IDT briefing paper on 20 February and this week under a central communication. Furthermore, a central communication was issued on 27 February with the Scope Allocation Surgery Procedure and the Assessment Request Template and these are now being completed by the teams.

- 4.12. The first two were submitted for Scope Allocation Surgeries on 04 March but they were only agreed in principle and not formal until completed forms are signed off by 11 March.
- 4.13. At the Executive Committee on 03 March, a paper was presented which resulted in a clearer set of principles for allocation, albeit there was understanding that certain specific scope items may not fit this simple breakdown. In principle, following EOWL triage, everything stated as required for Staged Completion 1/Trial Running will be delivered by the Tier 1, everything stated as required after Staged Completion 3 will most likely be by the alternative delivery model and anything between Staged Completion 1 and Staged Completion 3 will be assessed for allocation against the principles previously agreed.
- 4.14. Regarding the mobilisation of the alternative delivery model, an Elizabeth Line Programme Delivery Lead has been appointed and will receive scope and allocate it to the most suitable delivery vehicle within TfL following decision made at Scope Allocation Surgeries. The alternative delivery model is up and running and delivery timescales will be decided by the receiving party based on a combination of criteria but especially urgency and efficiency of procurement.

HIGH LEVEL SCHEDULE SUMMARY (*Reference: 5.0*)

- 4.15. There is a consensus at the Board-level that the current baseline (Delivery Control Schedule v1-0) is not fit for purpose given a [REDACTED] for the transitions from a construction railway to an operational railway under ROGS in February 2020 and a [REDACTED]. The issues this gives rise to is it is difficult to interpret performance against dates that clearly will not be met. The Board agreed to move towards a "soft re-baselining" to allow variance reporting against an instance of the DCS that aligned to the current [REDACTED] of Trial Running [REDACTED].
- 4.16. Building on these principles, there are options regarding what should be taken as the revised baseline, with associated positives and negatives.
- 4.17. First is an option to go relatively early in baselining with the Period 10 or Period 11 forecast. The positives are: [REDACTED] and the with which Crossrail can start reporting against this in Period 12. The negatives are: the items outlined in the P-Rep Report (e.g. full Quantitative Schedule Risk Assessment, EOWL triage in the schedule etc.) have not yet been completed.
- 4.18. Second is an option to go relatively late in baselining with the Period 12 or 13 forecast. The positives are: greater certainty and analysis to base the schedule upon (e.g. full Quantitative Schedule Risk Assessment, EOWL triage in the schedule etc). The negatives are: prolonged persistence with sub-optimal variance reporting in the interim.
- 4.19. The Chief Programme Officer and Programme Controls Director are currently exploring a hybrid approach that allows visibility of variance reporting against Period 10 (and thus the [REDACTED]), but maybe not setting the DCS v1-1 baseline until Period 12/13 (when the schedule risk assessment, EOWL triage in the schedule etc are better defined).

CRL 3 LINES OF DEFENCE (*Reference: 6.0*)

- 4.20. Crossrail notes the Project Representative's comments and agrees with the observations made.

COST, COMMERCIAL AND RISK (Reference: 7.0)

- 4.21. The Period 11 P50 AFDCD (Anticipated Final Crossrail Direct Cost) remains at £15,324m. This is £361m above Sponsors Funding of £14,963m. This AFDCD is based on Delivery Control Schedule forecast from Period 10, with project's Anticipated Final Cost forecast to the Deterministic Trial Running start [REDACTED] and a Period 9 Quantitative Schedule Risk Assessment Schedule Risk allowance of a [REDACTED] delay to the start of Trial Running.
- 4.22. The AFDCD still remains dependent on the achievement of key schedule dates, which continue not to be fully underpinned by the current delivery and assurance document production rates.
- 4.23. The build-up of the Crossrail P50 AFDCD, together with the current forecast of Cost to Go and Risk of [REDACTED], of which [REDACTED] is allocated to Risk, provides us with assurance there is adequate provision to cover costs to a [REDACTED] delay to the start of Trial Running; however, this is based on the Period 9 Quantitative Schedule Risk Assessment. Crossrail is carrying out an update to its Quantitative Schedule Risk Assessment in Period 12, which may confirm or identify emerging risk or scope changes that could increase or decrease forecast. (see graph in report)
- 4.24. The Cost to Go is referred to as inclusive of risk, mainly due to risk being predominantly Cost to Go in principle. Over the past 6 periods (since Period 5), COWD has increased by [REDACTED] compared to a reduction in Cost to Go plus Risk of [REDACTED]. It appears to us that the current rate of Cost of Work Done spend over the past 6 periods is more than the corresponding rate of reduction for CTG plus Risk. Although Direct Cost to Go is reducing, Risk is not seeing a corresponding equivalent reduction. Consequently, this results in an increase of Risk versus Cost to Go percentages in Period 11 from [REDACTED] to [REDACTED]; as reported in the Appendices to the Period 11 Crossrail Board Report.
- 4.25. The report says that [REDACTED] of the [REDACTED] Cost to Go is allocated to risk. Actually, [REDACTED] is allocated to Risk. A further [REDACTED] is allocated to programme contingency. So, a total [REDACTED] allocated to Risk and Contingency.

STAGE 2B (Reference: 8.0)

- 4.26. The baseline should be the Delivery Control Schedule V1.0 dates which were taken from the Period 2 re-baselined programme.
- 4.27. Bombardier Transport's technical files for APIS (Authorisation for Placing into Service) were submitted to the ORR on 27 February.

STAGE 3 (Reference: 9.0)

- 4.28. The issues raised are well known and acknowledged by the Crossrail Management Team. The creation of IDTs is one component of a wider set of Management Interventions that have been deployed to seek to improve performance. These interventions are documented and reported upon in the Board Report and include: (1) [REDACTED] Trial Running [REDACTED] (2) triaging EOWs; (3) establishing alternative delivery model mechanism/s; (4) deploying senior resources to project/site level wherever possible (including setting up IDTs); (5) Delivery Control Schedule alignment workshops and (6) improved visibility of interventions and assumptions. Additionally, since launching these interventions, an additional intervention relating to triaging Elemental Completion Handover Report (documentation) requirements for Trial Running has been launched.

4.29. The above interventions are being progressively deployed and embedded since the start of the calendar year. Crossrail believe that these interventions will make a difference and are also prudently starting to consider contingency plans should the above interventions prove to be insufficient. One example is the request being made to the appropriate authorities to allow Enhanced Dynamic Testing (i.e. up to 8tph) pre-ROGS, as an alternate method to build up reliability should ROGS date become protracted. The Chief Programme Officer's new organisational capability will also consider alternative strategies that will come forward in future Periods.

APPROVALS, ASSURANCE AND AGREEMENTS (Reference: 10.0)

4.30. A series of assurance progress reviews have been conducted with the IDTs on a per element/chapter basis that aligns to the contractors' ESJ delivery affecting Routeway, Shafts and Portals. Station Staged Completion 1 readiness has also been considered.

4.31. The Crossrail Assurance team has established a weekly surgery for the Tier 1 and Crossrail Delivery members of an IDT to seek assistance around their ESJ.

4.32. A number of ESJs have been received by Crossrail in the last Period that are now under review.

4.33. It is noted that the Delivery Control Schedule critical path lies through the last ESJ/SJ that is needed to support the safety assurance of a railway system chapter.

RAIL SYSTEMS & DYNAMIC TESTING (Reference: 11.0)

4.34. Crossrail notes the majority of the Project Representative's comments.

4.35. On 15 February, a [REDACTED] engineering train made contact with the cabinet of signalling equipment which pulled the door off. The investigation remains on going but it is believed that vibrations from the movement of trains during Dynamic Testing caused the locking mechanism on the cabinet door to move and eventually open. All cabinets of this type have been checked and doors secured with heavy duty tape as an additional precaution pending the outcome of the investigation. Gauge clearances have been checked and confirmed as sufficient. The design of the cabinets have been referred back to the manufacturer for review.

RELIABILITY GROWTH (Reference: 12.0)

4.36. The Multi-Train Testing slot that was lost at the start of February was the first opportunity to test Y0.500 configuration in multi-train. This was mitigated by collecting data from similar Dynamic Tests in February and a dedicated testing run in late February.

4.37. The software strategy for train control systems is key to reliability growth as fixes to know problems will become available in later releases. The Plateau team is exploring options that could bring forward key software, particularly TR2.

4.38. Plans for reliability do not rely upon the increase of test trains from 4 to 8. Mega Plan 2 will provide a significant increase in mileage with 4 trains and an increase to 8 trains will increase this further.

STAGE 4 SUMMARY (*Reference: 13.0*)

4.39. Crossrail notes the Project Representative's comments.

STAGE 5B OPENING

4.40. Crossrail notes the Project Representative's comments.

END

APPENDIX 1 – LIST OF CONTRIBUTORS

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

Period 11 FY2019-20 (05 January 2020 – 01 February 2020) report, issued and received on 02 March 2020.

Chief Executive Officer
Chief Finance Officer
Chief of Staff
Chief Projects Officer
Commercial Director
Communications Director
Contracts Commercial Manager
Cost Engineer (Project Delivery)
Crossrail Operations Business Manager
Deputy Programme Controls Director
Head of Assurance
Head of Programme Delivery Strategy
Head of Project and Programme Assurance
Head of Risk
Head of Systems Integration
Health and Safety Director
Lead Reliability Engineer
Operations Business Manager
Programme Controls Director
Programme Delivery Business Manager
Reporting and Governance Support Manager

APPENDIX 2 – ANNOTATED PREP REPORT

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