



RESPONSE TO THE CROSSRAIL SPONSORS ON THE PROJECT REPRESENTATIVE SPONSOR SUMMARY REPORT – PERIOD 08 REPORT

Date of Issue (this paper): 19 December 2019

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 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 for the Period 08 FY2019-20 (13 October 2019 – 09 November 2019) report, issued and received on 11 December 2019.
- 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. It's that time of year where we all take stock of the past 12 months and look ahead to a new year. One of the key achievements that stands out to me is the significant progress with developing a 'One Team' approach across our Tier 1, 2 and 3 suppliers. There is real passion and commitment across the programme helping us to adopt our spirit of 'owning the whole' and engaging in difficult conversations with each other with mutual care, respect and thoughtfulness; this will set the wider Crossrail team up for 2020 to see the benefits of what we've all been working so hard to achieve.
- 2.2. These collaborative behaviours are so key as they indicate the mindset of everybody helping to deliver this railway – a mindset of working together to overcome the complexity of this fantastic project. The PRep plays a large part in this, and we continue to welcome and embrace the feedback it provides.
- 2.3. It would be amiss to not mention the official start of services between Reading and London Paddington on 15 December 2019, known as Stage 5A. This is a fantastic milestone to reach and a proud moment for us all.

3. PRep Key Areas of Concern in the Period

3.1. The PRep highlighted two key areas of concern for Period 08 (*Reference: 15.1 and 15.2*). Crossrail's comments are provided below.

PRep Concern: "1. What is CRL's assessment of the impact of re-profiling the delivery of the engineering assurance paperwork with the DCS? How are these rates underpinned and what levels of resource are required to ensure successful delivery of this key programme milestone (including float)?"

Crossrail Response: In order to properly respond to the PRep's concern, an integrated view to the work ongoing to update the DCS and inputs feeding into the DCS is required.

The Period 09 DCS update has reflected a substantial reforecast of dates based on past, actual performance. This reforecast of the DCS milestones is being translated into the Level 1 and Level 0 Visualisation, and into a new Visualisation 2.0. This Visualisation 2.0 is a revision of the Crossrail visualisation process to align to Assurance-focused metrics and an integrated value stream approach. While maintaining 'plan to target' programmes and production rates at the project level, this is reviewed regularly and any approaches are adjusted to ensure maximum impact on delivery.

Work continues to improve the processes underpinning and supporting the DCS, including:

- Reviewing current and required production rates (through production of the KPI Tree, which is also shared at the Performance Engagement Forum with Board Members) and the relationship with the bottom-up project DCS schedule forecasts. Work is underway within Project teams now to reflect the alignment to production rates, and in the coming periods these schedule forecasts will better reflect this; and
- A version of Earned Value Management has been piloted and will be rolled out across targeted projects in the next 2-3 periods.

The above actions are also intended to address the assurance recommendations in TAR (Targeted Assurance Review) 008. The positive story of Crossrail's internal Programme Assurance function having consistent findings with the PRep is reassuring of Crossrail's ability to independently identify issues.

Further, specific interventions have been identified and implemented to address deficits with Technical Assurance, particularly:

- Increasing supplier resource to improve production rates of documentation;
- Technical Directorate and IM team resource increasing their focus on review and approval of documentation;
- Development of Right-First-Time Metrics to drive quality in production;
- Development of KPIs to track quality and consistency of reviews to reduce number of revisions; and
- A series of briefings have been carried out with all projects to clarify requirements and expectations on documentation.

Further to the above points, Crossrail recognises the challenge of paperwork specifically, and has taken a number of actions:

- Rationalising requirements of documents such as O&M Manuals to reduce the overall workload;
- Employing additional resources to work on production and review of documentation;
- Introducing new tracking methodologies and dedicated people to better understand problem areas and allow faster response;
- Cleansing of existing data to remove historical inaccuracies in databases. This has in the past caused both falsely positive and negative views on completeness;
- Deploying common use of data across RfL/LU/CRL/CEG and suppliers;
- Moving from a periodic reporting of data to a weekly cadence; and
- Deploying cross-directorate “Tiger Teams” to tackle problems areas on projects.

Crossrail maintains its commitment to transparency with the PRep during the inclusion of the impacts of the interventions for assurance paperwork into the DCS. Through this engagement, the PRep will have a pragmatic and contemporaneous view of the impact on the schedule.

PRep Concern: “2. While supporting CRL’s alternative delivery strategy, we believe there is substantial work required to establish the new approach. Could CRL provide details on the stages and timings of the transition, and confirm how this will be managed?”

Crossrail Response: Crossrail agrees with the PRep's comments; the high-level principles for the strategy of alternative delivery have been defined, affirming the requirement for robust controls and governance for the process.

The next step will be the definition of the process for the future delivery strategy - this will align with the work ongoing to define the future organisation structure. This detailed work has begun and is defining how the structure will operate and be governed. Information will be shared with PRep contemporaneously as it progresses.

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. It is positive that the PRep recognises the challenge and proactivity demonstrated by Crossrail in the management of Health and Safety. Crossrail is refocussing SHELТ to have the Contractor, alongside their Client representative, narrate their own H&S Performance, inclusive of their Improvement Plan. The intention is to ensure the SHELТ members are supporting their Contracts by analysing the H&S Performance Indicators (leading and lagging). This will drive the identification of improvement opportunities and good practice / performance, promote the sharing of as a Leadership Team, and increase accountability.

4.3. Crossrail would like to note that the RIDDOR referenced was a broken ankle and not a foot, and note the PRep's suggestion of aligning to a facility management environment.

PREDICTABLE PERFORMANCE (Reference: 2.0)

4.4. To reduce duplication, Crossrail's main comments have been included in its response to the PRep's Key Area of Concern 1 (Reference 15.1).

4.5. Crossrail is unable to reconcile the PRep's analysis of milestone forecasts against their [REDACTED] [REDACTED] Using Crossrail's data set, the following numbers are derived:

- Forecast in advance of [REDACTED] date: 49 (including 25 completed)
- Forecast on [REDACTED] date: 17 (including 5 completed)
- Forecast beyond [REDACTED] date: 54 (including 0 completed)
- Total 120 milestones (including 30 completed)

4.6. Crossrail's Reporting Team is now working with the PRep to ensure they have access to the accurate [REDACTED] dates and period forecasts.

RISK TO STAGE 3 OPENING (Reference: 3.0)

4.7. To reduce duplication, Crossrail's main comments have been included in its response to the PRep's Key Area of Concern 1 (Reference 15.1).

ALTERNATIVE DELIVERY ROUTE (Reference: 4.0)

4.8. To reduce duplication, Crossrail's main comments have been included in its response to the PRep's Key Area of Concern 2 (Reference 15.2).

HIGH LEVEL SCHEDULE SUMMARY (Reference: 5.0)

4.9. To reduce duplication, Crossrail's main comments have been included in its response to the PRep's Key Area of Concern 1 (Reference 15.1).

CRL 3 LINES OF DEFENCE (Reference: 6.0)

4.10. Crossrail has implemented the essential priority documents and, since the timing of this Period 08 PRep report, significant headway has been made in progressing outstanding documents.

4.11. Overall it is promising that the PRep's comments are substantively the same as those that Crossrail has identified in its own Periodic Assurance Report, and supports the quality of Crossrail's Programme Assurance function.

COST, COMMERCIAL AND RISK (Reference: 7.0)

4.12. Crossrail welcomes the detailed focus provided by the PRep on Cost, Commercial and Risk matters. Due to this detail, the following commentary is by exception, and Crossrail notes the majority of what has been said.

4.13. The prolongation component outlined in the table in Appendix 3 should be marked 'indicative'. There is a significant range here, but the nature of the modelling of prolongation

within the QRA makes it difficult to report separately in the P80 calculation. The prolongation assessment is a function of the QSRA output. Prolongation costs are calculated accordingly based on run rates provided by the Crossrail Finance Team.

- 4.14. The cost overlay to accommodate potential movement needs to be replaced by bottom up forecasts from the projects after consideration of contractor submissions and in line with an agreed DCS forecast that contains remaining activities and scope. The plan is to progress towards this for the 30 January 2020 Crossrail Board meeting. It is agreed that the timescales are very tight. The work plan being built with Delivery, Technical and Operations is seeking to maximise the use of an evidence-based approach and it is acknowledged that management judgement will be required in places.
- 4.15. Crossrail would be interested to see how the PRep has derived their figure of [REDACTED] for the P50 exposure.
- 4.16. With regards to the PRep's comments on the interventions (mitigations) included by Crossrail, an explanation by the PRep of what it means by 'historically entrenched' would be appreciated to allow Crossrail to fully respond. For clarification, where applicable any impacted risks are transferred to Cost to Go with residual exposure being retained in the QRA.
- 4.17. Crossrail would be interested to see how the PRep has derived their figure of [REDACTED] for the value of risk transferred to Cost to Go.
- 4.18. Crossrail welcomes, acknowledges and accepts the PRep's comments on areas for improvement in the Risk process. With respect to short term focus, Crossrail is currently developing its view of risks relating to Operations, Handover and Testing & Commissioning activities, and is integrated with the end to end planning activity for Stages 3, 4 & 5 that will further extend the time horizon for risk assessment. Many risks are common across similar projects, but we do not believe that this constitutes significant overlap and duplication; in relation to this, Crossrail would appreciate the PRep advising of where this exists and Crossrail will take appropriate action to resolve. It would appear, for the benefit of the reader in their interpretation of the PRep's comments, to highlight the difference between Risk Exposure (being a component of Forecast) and Contingency (being a Budget to manage risk events).
- 4.19. Regarding the PRep's comments on the apparent efficacy of mitigations on reducing the probability of risks, figures 1-7 shows that the average probability of unmitigated risk is 43% vs probability of mitigated risk is 39%. Separate analysis shows that approximately 20% of active risks in ARM have a different probability between pre- and post-mitigation.

STAGE 2B (Reference: 8.0)

- 4.20. Crossrail notes the PRep's comments.

APPROVALS, ASSURANCE AND AGREEMENTS (Reference: 9.0)

- 4.21. The first Railway Systems Safety Justification (SJ) for the Track chapter has now been endorsed by RAB(C). The rate of RAB(C) submissions is expected to increase now as the physical works complete and delivery assurance matures.

- 4.22. Further clarification has recently been given to Delivery Teams on the stage completions defined as SC1 and SC3 for stations. The nursery sites are being used to increase the collective understanding between contractors, Crossrail Limited delivery, CEG and IMs.
- 4.23. Methods of tracking actual progress have been developed, such as the Technical Directorate Dashboard. This has been used in the risk overlay activities around the Period 09 DCS update.
- 4.24. The potential bottleneck of specialist resources has been recognised and was considered within the DCS risk overlay activities around the Period 07 and subsequent DCS updates.

DYNAMIC TESTING (*Reference: 10.0*)

- 4.25. In the week commencing 09 December, Crossrail received positive indication from the ORR regarding the uplift to 8 trains based on a safety argument. Crossrail is working with C610 and ATC to produce a sound justification and safe method of working for uplifting from 4 trains up to 8 in order to maximise data collection. In addition, Crossrail is evaluating an option to run 4 trains in close headway in a squadron formation to simulate an uplift in the number of trains.
- 4.26. Crossrail does not disagree with the sentiment of the statement regarding P_D+11's functionality. However, P_D+11 delivers significantly more than the minimum functionality. Reliability is not being prioritised at the expense of functionality required for operability.
- 4.27. With regards to the PRep's comments on the risk surrounding the possession interface with Network Rail assets, Crossrail has scheduled all required tests. These are completing by 10 February 2020 through the use of shorter access windows supported by 2 longer access windows at the end of January 2020. On GWML, all available tests are scheduled to be undertaken by 17 February 2020 with the access secured up to and including 31 March 2020.

RELIABILITY GROWTH (*Reference: 11.0*)

- 4.28. Bombardier expects that its Full Length Units (FLU) will reach 5,000MTIN before the start of Trial Running and has series of fixes planned that will contribute towards this. The first and second quarter of 2020 will provide much better visibility of actual performance with FLUs as mileage will increase significantly and provide increased confidence of the trajectory for improving reliability. Coordination between CRL, BT and Siemens have been stepped up and fixes have been prioritised such that an MTBSAF of circa 50 minutes is expected to be delivered with Y0600 and increased to 90 mins MTBSAF very shortly afterwards. The configuration for Y0600 has not yet been frozen and this performance could improve.

STAGE 5A SUMMARY; STAGE 5B OPENING; STAGE 4 & 5 SUMMARY (*References: 12.0, 13.0 & 14.0*)

- 4.29. 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 08 FY2019-20 (13 October 2019 – 09 November 2019), issued and received on 11 December 2019.

Advisor to the CEO
DCEO Business Lead
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 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

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