

RESPONSE TO THE CROSSRAIL SPONSORS ON THE PROJECT REPRESENTATIVE SPONSOR SUMMARY REPORT – PERIOD 1 REPORT

Date of Issue (this paper): 25 June 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

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 1 FY2020-21 (05 April 2020 – 02 May 2020) report, issued and received on 29 May 2020.
- 1.3. The format of Crossrail's response has changed as of this response (Period 2) in order to provide a more integrated narrative reflective of the nature of the programme.

2. Recovery [REDACTED]

2.1. At the Crossrail Board on 28 May 2020, the Board endorsed [REDACTED]

[REDACTED] extensive work by the Silver Response Team to protect, remobilise and re-plan the works following the Safe Stop. This approach is deemed one of pragmatism and urgency, with opportunities capitalised on as the Silver Teams developed their workstreams; Crossrail would of course welcome views on specific areas regarding its response from the Project Representative.

2.2. Crossrail also presented its Period 1 position to the May Board. The Period 1 position held that of Period 13 apart from for those works within an 8-week lookahead window. This allowed Crossrail to receive endorsement of a coordinated organisational approach. It is useful to clarify that the Commencement of [REDACTED] for Period 1 was also held as the Period 13 [REDACTED] – [REDACTED] as highlighted within the Period 1 Board Report, and not [REDACTED] as indicated by the Project Representative.

- 2.3. [REDACTED] provides the basis on which the DCS1.1 is being constructed and represents the culmination of the Silver Recovery Trial Running Team's effort (under the Crossrail Gold Response Team for COVID-19).
- 2.4. Anticipated Final Cost (AFC) reporting for Period 1 was concurrent with the [REDACTED] and in advance of formal adoption of a recovery plan. Consequently, as set out in the Board Report and associated papers, no updated AFDC was calculated or presented at Period 1.

3. DCS1.1 Development

- 3.1. Naturally, the programme is facing the same uncertainty and urgency as the rest of country with respect to the continuation of delivery, and a key enabler of effective delivery is having a data-backed plan bought into by Crossrail's stakeholders. While this is a complex activity, the current context adds to the complexity owing to the pace with which it needs to be deployed. Crossrail considers the approach taken to the development of a revised schedule to be one of prudence, [REDACTED] based on government and wider-industry information for submission to the Board for consideration and endorsement. This ensures there is a transparent and resilient underpinning logic to subsequent detail of the schedule.
- 3.2. A holistic approach is being taken to the translation of the [REDACTED]
[REDACTED]
[REDACTED] Two of these modules cover the cross-cutting (i) Commercial and Finance strategy, and (ii) the Team Crossrail Strategy. Particularly, the Team Crossrail Strategy is being driven by Crossrail's Chief People Officer. A full organisational design and transition plan aligned with the programme plan is being developed and culture will be a key enabler to ensuring success. It also includes mapping the end state organisation, the current state and the required states at each inflection point between now and the end state Elizabeth line organisation.
- 3.3. Where it has been appropriate to do so, Crossrail has sought to bring the supply chain in at the earliest opportunity of the [REDACTED]
[REDACTED] both to best prepare our suppliers and to capitalise on their knowledge and experience. This was especially key during the planning for the restart of dynamic testing, which successfully occurred on 30 May 2020, and has been ongoing through the authorisation and execution of niche works across the programme. The supply chain is similarly engaged during the development of the DCS1.1, particularly in building up dependable production rates and in logistical planning for the construction blockade.
- 3.4. The Chief Programme Officer is coordinating a complete review of the remaining scope to ensure it is appropriately phased in line with the [REDACTED], including ensuring that EOWs for each station are considered. All EOWs required for Trial Running and/or require integration with the Routeway will be completed by [REDACTED] in line with the [REDACTED]
[REDACTED] This is in line with the Project Representative's previous recommendations that works essential to Trial Running are prioritised.

- 3.5. A data backed schedule, including production rates, is essential to demonstrate confidence and provide a reliable basis for planning and managing the remainder of the works. Since the start of the year, the organisation's ability to analyse its data has improved significantly through building business intelligence platforms, providing Crossrail with a good basis of validation for certain activities especially documentation. Additionally, the tightly controlled niche works have had a similarly diligent level of monitoring that allows an insight into likely productivity within constrained delivery contexts. Where data is lacking, whether by novelty of task or by inconsistent performance, Crossrail is working with the relevant stakeholders (including the supply chain) to determine appropriate production rates.
- 3.6. There are instances where estimated production rates are available that require optimisation to confidently support the programme. This is especially true for the delivery of key assurance documentation such as Operation and Maintenance manuals (O&Ms), Acceptance Certificates (ACs) and Safety Justifications (SJs). Where these have been identified, Crossrail is working with the relevant stakeholders to agree and implement mitigative action to rectify. Crossrail is working closely with RfLI, the Infrastructure Manager, to drive efficiencies into the assurance process through pragmatically undertaking activities in parallel, providing extra resource to resolve bottlenecks (e.g. document control), resource loading programmes, implementing joint approval of documentation, and reinforcing a proactive and collaborative culture. Crossrail programme governance forums are being utilised to track the impacts of these and to commission further reviews where necessary, with a specific example being the review on O&M production through the Trial Running Mobilisation Board (TRMB).
- 3.7. As part of the development of the DCS1.1, a risk exercise will be carried out to assess the most likely schedule outcome [REDACTED]. For clarity, Period 13 quantified risk analysis was based on a [REDACTED] not the [REDACTED]. There is a misalignment between the [REDACTED] used in the Quantified Schedule Risk Analysis (QSRA) and the published, [REDACTED], start of [REDACTED]. The difference of [REDACTED] is acknowledged in risk reporting and considered acceptable in comparison to the [REDACTED] delay to P50 that is accounted for in the risk allowance.
- 3.8. The planned approach for the DCS1.1 will be put forward to the June Board for discussion and to the July Board for approval.

4. Delivery

- 4.1. The Project Representative highlights a specific concern that Crossrail “*has failed to achieve a programme that has achievable milestones and dependable forecast dates but built around overly optimistic production rates and schedule durations*”. In Period 13 (used as the pre-COVID-19 reference case), the programme derived a [REDACTED] [REDACTED] endorsed by the Board in January 2020. It is acknowledged that the programme faced challenges with productivity and resolving complexity, especially regarding the Shafts and Portals, and that interventions were required. However, the Project Representative’s comment risks premature conclusion on the delivery of the programme in an environment not faced with COVID-19. Additionally, it risks generalising performance and not highlighting successful delivery such as software integration and dynamic testing. Crossrail would welcome a greater level of specificity to the areas of the

Project Representative's concerns with respect to this so a more detailed response can be provided.

4.2. Where it is possible, Crossrail deploys tactical mitigations either not requiring Board approval or by seeking Board approval where necessary. However, in relation to scope which is Sponsor-controlled, and cannot be unilaterally varied, Cost To Go (CTG) is allocated on an emerging cost basis. Any delays to the Programme due to nature of works, intricacies of interdependencies or otherwise, will incur additional care and custody and indirect costs.

4.3. With the example of niche works, Crossrail has mobilised its supply chain against closely controlled packages of work where 2145 packages have been authorised to proceed, 609 packages have been started and 344 completed. [REDACTED]

[REDACTED] The recent changes in the Furlough rules will improve matters as people can come on/off furlough much more speedily. The safety and wellbeing of our people, mentally and physically, is the organisation's principle consideration throughout all of this.

4.4. With the example of a staged approach to handing over the Shafts and Portals, Crossrail has implemented an interim state called 'Staged Completion for Familiarisation' (SCF) that represents the point at which all safety-critical works have been completed and where the Infrastructure Manager can start to familiarise itself with the asset. Limmo Shaft achieved this state on 09 June 2020, leaving three of ten Shafts and Portals still to reach this step. The remainder of the non-safety-critical works to go following the achievement of SCF is being managed on a T+8 timeline with the support of a dedicated team and organisational reporting.

4.5. Key risks to Trial Running and beyond such as D25 noise issues continue to be managed during this time. A dedicated Project Engineer has been assigned to push this issue with the relevant sites, specifically:

4.5.1. TCR-W – a retest has been undertaken and the significant issue has now been resolved. There are some snags associated with noise escaping under fan doors which are now been addressed by the site team. This site is now not considered a risk for completion for Trial Running.

4.5.2. FAR-E – implementation of an additional attenuator is being progressed with completion of works and testing forecast for end of August.

4.5.3. WOO-E – a modification to the fan modes has been implemented. Acoustic analysis of tests is currently underway, with a view to this resolving the noise exceedances.

4.5.4. WOO-W – this remains the most challenging site to develop a permanent solution. Further investigations are currently underway to resolve the structure-borne noise issues. A temporary workaround that will support Trial Running has been instructed to C610. Full resolution will be required for Trial Operations / Revenue Service.

5. Cost

5.1. The Project Representative's comments reflect a mathematical product of the AFDCD increasing. The Cost Of Works Done (COWD) over the past six periods is [REDACTED] more than the corresponding rate of reduction for Cost to Go plus risk because the AFDCD estimate has increased by [REDACTED] over this time. In Period 10, AFDCD increased by [REDACTED], in Period 12

there was a further [REDACTED] increase and in Period 13 [REDACTED]. The explanations for the increases were set out in the Board Reports and associated papers for these periods. In other periods, the increase in COWD has seen a corresponding decrease in cost plus risk.

6. Operations

- 6.1. MTR approval for Full Length Units (FLUs) was achieved on 04 June, and Heathrow Airport Limited's (HAL) LoNo is expected 09 June. Delay to MTR and HAL approvals was caused by updating the operational risk assessment to include latest data from GWML running. Relevant consents achieved 11 June, however because all 9 Car trains are out of passenger service (and replaced by 7 car) due to separate software fault, the date for implementation is TBC. The impact on Stage 3 has been a one-week risk added to the current forecast date (19 June) for BT delivering the assurance submission for the Trial Running baseline assured configuration Y0.510.
- 6.2. The target of 20,000 MTIN for FLUs referenced by the Project Representative is not recognised. Reliability is currently dominated (around 65% of Service Affecting Failures) by train control software defects. Defect-fixing TCMS (and ETCS) releases for FLUs operating in the Central Operating Section programmed by BT in August, October and January 2021, and a new strategy was agreed in Period 1 to load these updates in parallel to the GW/Heathrow FLU fleets to realise passenger service reliability improvements. Significant risk exists to the extent of the defect fix effectiveness in the software updates.
- 6.3. Rolling Stock Correct Side Door Enabling on- train system programming proceeded at risk using 2019 track balise positioning surveys. New surveys are required to use 'balise pairs' as requested by Network Rail, with surveys planned to conclude in November 2020. Balise fittings on GE (for Stage 4a) are scheduled for completion February 2021.
- 6.4. Network Rail lost 145 hours of access in the last 4-5 weekends of the large blocks between Christmas 2019 and April 2020 (week 03) due to storms and COVID-19, and with the majority of the works requiring All Line Block which involves a partial closure of the railway to carry out works or a minimum of two tracks isolated, Network Rail were unable to get the available access to re-plan the works into existing access or available access this summer.

END

APPENDIX 1 – LIST OF CONTRIBUTORS

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

Period 1 FY2020-21 (05 April 2020 – 02 May 2020) report, issued and received on 29 May 2020.

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 – PREP REPORT

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