

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

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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 2 FY2020-21 (03 May 2020 – 30 May 2020) report, issued and received on 22 June 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. Delivery Control Schedule (DCS) 1.1 Development

2.1. The DCS1.1 (the schedule) is being finalised throughout July and August through planned focussed reviews for Shafts and Portals, Routeway and Stations. Progressive first and second Line of Defence (LoD 1 and 2) assurance, plus targeted Assurance Panel reviews, are being carried out in parallel in order to provide timely advice and objective assessment of the corrective actions necessary to build a robust schedule. The assurance and review are structured around six key focus areas:

- I. Is the scope to go correct, all loaded into the Central Operating Section access plan, and where is it (i.e. pre-blockade, intra-blockade, post -blockade, up to Trial Running, or after the start of Trial Running);
- II. What are the critical resource constraints, how are they addressed in the schedule assumptions and are those assumptions valid?
- III. Are the activity durations supported by credible productivity assumptions, particularly for critical resource (noting any COVID-19 Social Distancing restrictions)?
- IV. What is the 'Blockade' success criteria? What confidence do we have in achieving this?
- V. From the start of System Integration Dynamic Testing, through Trial Running and Trial Operations, is there a plan with sufficient access and time to resolve issues to achieve the reliability growth necessary to support 12 trains per hour at start of Stage 3 revenue service, and then 24 tph at stage 4, [REDACTED]?
- VI. At each planned handover point, are the Infrastructure Managers sized and resourced sufficiently with the right capability to receive the staged railway? Is there a clear transition plan for the organisation and supporting operating model for the Elizabeth line?

- 2.2. In considering these focus areas the extent to which the supply chain is bought into the schedule will be assessed. Planning activity is ongoing to determine the most effective mitigation should the full scope of work not be achieved during the blockade period. This includes the timing of a contingency blockade prior to Trial Running. The Trial Running plan will include any activity required post-blockade with a preference to execute it during engineering hours.
- 2.3. The draft Execution Plan was submitted to the June Board and is being updated in support of the schedule for the July Board in two specific areas:
- I. The resilience and agility of the Execution Plan and schedule to deal with the uncertainty of COVID and other unknowns without impacting on forecast dates; and
 - II. Risk management through to programme closeout.
- 2.4. The blockade is the key mitigator to poor productivity, as it will allow full planning of the required work scope for Trial Running and the operation of a three shift 24/7 approach. An hour by hour plan will be used to measure productivity of both work scope completion, verification and testing, and assurance. A detailed review of all critical and current resources is underway with priority being given to Engineering, Assurance, Technical and Delivery teams.
- 2.5. At the Blockade T-Minus 4 weeks review it was confirmed that all contractors have been involved in briefings and critical contractors have confirmed buy-in to supporting the blockade. Productivity rates are being assessed for the critical technical resource and adjustments in relation to concurrency of works assessments. Shift work teams are being planned based on productivity achieved to date and extra time is being allocated to the latter stages of the blockade to allow for slippages should COVID-19 productivity impacts be greater than anticipated.
- 2.6. The Engineering team is establishing a scope baseline for the works to go to Trial Running through to completion. Not only will the completeness of the scope be reviewed, but the time taken for the scope to be completed is also taken into consideration. This is further assured through the LoD 2 review included in the Programme Assurance Report and critically reviewed as Item 1 of the six lines of assurance enquiry listed in paragraph 2.1.

3. Programme Delivery

- 3.1. Shafts and Portals are making good progress; six have been handed over to RfL Infrastructure Managers (IMs), one has been handed into the Staged Completion for Familiarisation (SCF) phase and three are on schedule to be handed into SCF in July and August. The Virtual handover process will not be repeated for future assets. The Shafts and Portals team have thoroughly reviewed the scope to go as part of the Blockade planning in train, and have confirmed (as at 6 July 2020) that of the 327 Trial Running dependent Element Outstanding Works Lists (EOWLs) items that are currently open, all will be closed one week before the blockade end, leaving 44 non-Trial Running dependent EOWLs open. The team are also forecasting all Acceptance Certificates to be at Code 1 by 10 September 2020. Further, Integration testing has been completed for all Shafts and Portals. Health & Safety files, red line drawings and asset data drops are being monitored through the Trial Running Mobilisation Board. A dashboard indicating status of EOWL items, Acceptance Certificates and Safety Justifications also undergoes the same weekly review process.

- 3.2. SCF de-risks the programme by allowing the maintainer and operator to become familiar with the site whilst the Tier 1 contractor is in control as Principal Contractor. This allows the Infrastructure Manager (IM) to benefit from first-hand knowledge of contractor's Engineers and Installers in a controlled environment. As a result, the IMs will quickly get up to speed on the fitout and operation of the element before the contractor leaves site. This de-risks the IM readiness to assume operational control when the infrastructure is authorised into operational use and removes the need for staged ROGS handover to the IM at each of the Elements.
- 3.3. RfL and Crossrail have put a focussed Operations & Maintenance (O&M) manual team in place. The rate of O&M completion has significantly improved and it is expected that the current rate of ten O&M manuals signed off each week, plus the resolution of common observations for tranches of O&Ms will achieve an O&M sign off completion date of [REDACTED] in line with the current [REDACTED] schedule forecast start of Trial Running [REDACTED].
- 3.4. It is expected that supply chain staff will be brought back from furlough to full time work, with the graduated full remobilisation of the supply chain to the full extent possible under Public Health England guidelines from 15 June 2020. This will increase the responsiveness of contractors to activity mobilisation and rate of completion of approved activities.

4. Organisation

- 4.1. A new workforce/resource planning process has been put in place, working closely with the Finance team, and this identifies critical resources who need their end dates extended or where there are gaps which need to be addressed without delay.
- 4.2. Possible mitigations utilising TfL resources are also under discussion as well as alternative sourcing solutions. Actions to address each of these issues is underway and linked to the overall programme plan. Further work will be required to ensure this remains a live activity for the remainder of the programme into successful delivery.
- 4.3. The Transition Plan has been developed and approved by the Crossrail Board. All elements of the "as is" and "to revenue service/end state organisation" parts of the plan are now actively being worked up and are underway. Engagement with TfL and the relevant IMs is also underway to ensure clear ownership of activities by "giver and receiver" are clear and the gaps understood.
- 4.4. The decision-making process and weekly forum cycles have been reviewed and will be augmented as part of the COVID-19 Recovery Execution Plan that focus on the programme's resilience and agility. Although key forums meet weekly, issue escalation has relied on the Executive member present to escalate key issues to the Executive team. It has been proposed that a one-page summary of decisions taken, key issues and issues for escalation is collated weekly from each forum and issued to the Executive team in addition to strengthening the Terms of Reference to further integrate key governance forums. Any items not resolved within two weeks will be escalated to the Executive Strategy Group.

5. Cyber Security

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- 5.4. It is worth noting that due to the time required to implement this change, undertaking this change now would have a significant schedule impact on TR, Trial Operations and Revenue Service, with the solution not actually being available until after Revenue Service anyway

[REDACTED]

- 5.6. A conversation will be held with Siemens, Network Rail and other interested parties within the industry regarding the development and implementation of this upgrade, with a view to reducing the time, cost and system impact to implementing this change.

6. Operations & Reliability Growth

- 6.1. The MTR Driver Training Programme is ongoing, working to close the existing delta, with non-CBTC drivers fulfilling diagrams not requiring CBTC. MTR has factored in a 'reasonably' high spares and cover capacity, resulting in a high level of confidence of coverage for all aspects of the programme. MTR training programme re-commenced week commencing 22 June 2020 following on from COVID-19 restrictions.
- 6.2. Detailed plans are in place in Rail for London Infrastructure (RFLI) for both recovery from the impact of COVID-19 on RFLI Operations and Maintenance business activities as well as preparedness for their roles within Systems Integration Dynamic Testing (SIDT). The plans also detail how RFLI will meet the new DCS 1.1 programme dates. The plans include training, procedures, exercising and works activities that RFLI will deliver to take their agreed roles in SIDT in readiness for ROGS transfer. The interfaces and interdependencies have been clarified. Further opportunities to de-risk readiness are also being explored
- 6.3. For the Trail Running phase, work is underway to consolidate RFLI's ramp up/familiarisation requirements for the initial four weeks of Trail Running, any further activities required to prove the operation of the timetable including disruption management and any opportunities that exist to bring forward Trial Operations activity into the Trial Running period. The consolidated requirements will be input to the Trial Running planning team. However, it should be noted the requirements have already been tabled through the Trial Running working group.
- 6.4. A slot for Operational Scenario Testing (OST) has been secured on 1 August 2020, ahead of the construction blockade, and will provide validation of the expected performance of Y0.540. OST will restart in September, after the blockade, and with an expected day per week of reliability insight. From November, SIDT will provide intense stressing of systems over an

average five days per week with eight trains running a timetable-based operation. This will validate expected performance of train and signalling control on systems (Y0.603) likely to be used in Trial Running. This period will also stress wider systems and provide opportunity to test procedures and responses. Additional insight on rolling stock performance will be gained from mileage on the Great Western Main Line and Great Eastern Main Line, with Full Length Units expected to be running converged software, same as the Central Operating Section from September. Any additional construction work during the SIDT period is expected to be completed during engineering hours.

7. Cost

- 7.1. Period 2 was the first period-end when we have consolidated project team forecasts that incorporate the impact of COVID-19 and that are based on the recovery plan. These forecasts were overlaid with project level adjustments to improve consistency and to guard against optimism bias, for example in assumed production rates. Due to this and the still-developing nature of the DCS 1.1 schedule, the Anticipated Final Crossrail Direct Costs forecast presented at Period 2 needs to be considered as emerging rather than a fully substantiated position. Given Safe Stop and continued Social Distancing, this bottom up emerging forecast has shown an expected cost increase, and is within [REDACTED] [REDACTED] outcomes that were presented at the May Crossrail Board.
- 7.2. Crossrail continues to engage with Sponsors, including targeted workshops, as well as at standing Boards and Committees. This includes presenting options to mitigate delays, options which continue to be developed and executed
- 7.3. A significant effort is ongoing to clarify scope and to establish a robust and credible plan that directly addresses challenges, such as Social Distancing, and limiting factors, for example specialist resource constraints. An update will be presented at the July Board meeting along with updated cost forecast ranges. Alongside the schedule and cost forecasts, detailed supporting documentation will be provided. Furthermore, a targeted assurance review is underway to test the robustness of the recovery plan and schedule forecast given a series of key lines of enquiry.

END

APPENDIX 1 – LIST OF CONTRIBUTORS

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

Period 2 FY2020-21 (03 May 2020 – 30 May 2020) report, issued and received on 22 June 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