

Agenda

Meeting: Elizabeth Line Committee

Date: Thursday 30 September 2021

Time: 10:00am

Place: Conference Rooms 1&2, Ground Floor, Palestra, 197 Blackfriars Road, London SE1 8JZ

Members

Heidi Alexander (Chair)

Anne McMeel (Vice-Chair)

Prof Greg Clark CBE

Dr Nelson Ogunshakin OBE

Mark Phillips

Kathryn Cearns OBE (Department for Transport Observer)

Sarah Atkins

Copies of the papers and any attachments are available on [tfl.gov.uk How We Are Governed](https://tfl.gov.uk/How-We-Are-Governed).

This meeting will be open to the public and webcast live on [TfL YouTube channel](#), except for where exempt information is being discussed as noted on the agenda.

There is access for disabled people and induction loops are available. A guide for the press and public on attending and reporting meetings of local government bodies, including the use of film, photography, social media and other means is available on www.london.gov.uk/sites/default/files/Openness-in-Meetings.pdf.

Further Information

If you have questions, would like further information about the meeting or require special facilities please contact: Sue Riley, Secretariat Officer; Email: sueriley@tfl.gov.uk

For media enquiries please contact the TfL Press Office; telephone: 0343 222 4141; email: PressOffice@tfl.gov.uk

Howard Carter, General Counsel
Wednesday 22 September 2021

**Agenda
Elizabeth Line Committee
Thursday 30 September 2021**

1 Apologies for Absence and Chair's Announcements

2 Declarations of Interest

General Counsel

Members are reminded that any interests in a matter under discussion must be declared at the start of the meeting, or at the commencement of the item of business.

Members must not take any part in any discussion or decision on such a matter and, depending on the nature of the interest, may be asked to leave the room during the discussion.

**3 Minutes of the Meeting of the Committee Held on 15 July 2021
(Pages 1 - 8)**

General Counsel

The Committee is asked to approve the minutes of the meeting of the Committee held on 15 July 2021 and authorise the Chair to sign them.

4 Matters Arising and Actions List (Pages 9 - 12)

General Counsel

The Committee is asked to note the updated actions list.

5 Safety Update (Pages 13 - 16)

Chief Executive Officer, Crossrail and Chief Operating Officer, Elizabeth line

The Committee is asked to note the paper.

6 Project Status Update (Pages 17 - 22)

Chief Executive Officer, Crossrail

The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.

7 Elizabeth Line Readiness and Transition Update (Pages 23 - 26)

Chief Operating Officer, Elizabeth line

The Committee is asked to note the paper.

8 Finance and Risk Update (Pages 27 - 28)

Chief Finance Officer, Crossrail and Divisional Finance Director, London Underground

The Committee is asked to note the paper and the supplemental information on Part 2 of the agenda.

9 Project Representative Report (Pages 29 - 30)

Chief Executive Officer, Crossrail

The Committee is asked to note the paper and the supplemental information on Part 2 of the agenda.

10 Elizabeth Line Programme Assurance Update (Pages 31 - 48)

TfL Director of Risk and Assurance

The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.

11 Members' Suggestions for Future Discussion Items (Pages 49 - 52)

General Counsel

The Committee is asked to note the forward plan and invited to raise any suggestions for future discussion items for the forward plan and for informal briefings.

12 Any Other Business the Chair Considers Urgent

The Chair will state the reason for urgency of any item taken.

13 Date of Next Meeting

Thursday, 25 November 2021 at 10.00am.

14 Exclusion of Press and Public

The Committee is recommended to agree to exclude the press and public from the meeting, in accordance with paragraph 3 of Schedule 12A to the Local Government Act 1972 (as amended), in order to consider the following items of business.

Agenda Part 2

15 Project Status Update (Pages 53 - 58)

Chief Executive Officer, Crossrail

Exempt supplemental information relating to the item on Part 1.

16 Finance and Risk Update (Pages 59 - 66)

Chief Finance Officer, Crossrail and Divisional Finance Director, London Underground.

Exempt supplemental information relating to the item on Part 1.

17 Project Representative Report (Pages 67 - 168)

Chief Executive Officer, Crossrail

Exempt supplemental information relating to the item on Part 1.

18 Elizabeth Line Programme Assurance Update (Pages 169 - 180)

TfL Director of Risk and Assurance

Exempt supplemental information relating to the item on Part 1.

Transport for London

Minutes of the Elizabeth Line Committee

Teams Virtual Meeting 2pm, Thursday 15 July 2021

Members

Heidi Alexander (Chair)
Anne McMeel (Vice-Chair)
Sarah Atkins (non-voting Member)
Professor Greg Clark CBE (for part)
Dr Nelson Ogunshakin OBE

Government Representative

Kathryn Cearns OBE

Executive Committee

Andy Byford	Commissioner
Howard Carter	General Counsel
Mark Wild	Chief Executive Officer, Crossrail

Staff

Mushtaq Ali	Interim Head of Internal Audit
Carole Bardell-Wise	Health, Safety and Quality Environment Director
Susan Beadles	Head of Legal Services and Company Secretary, Crossrail
Nduka Ezediuno	Chief of Staff, Crossrail (Interim)
Lorraine Humphrey	Interim Director of Risk and Assurance
Stacey Kalita	Head of Finance Close Out, Crossrail (Minute Reference 67/07/21)
Maureen Kirk	Senior Internal Audit Manager
Heather Preen	Head of Local Communities and Partnership (Minute Reference 70/07/21)
Howard Smith	Chief Operating Officer, Elizabeth line
Stuart Westgate	Head of Programme Assurance, Crossrail
Shamus Kenny	Secretariat Officer

Other Attendees

TC Chew	Chair of Crossrail Independent Investment Programme Advisory Group (IIPAG) Sub-Group
Stephen Hill	Jacobs, Project Representative
Stephen Jolly	Crossrail Complaints Commissioner (Minute Reference 70/07/21)
Alison Munro	Chair of Independent Investment Programme Advisory Group

46/07/21 Apologies for Absence and Chair's Announcements

The Chair welcomed everyone to the meeting,

The meeting was broadcast live on YouTube, except for the discussion of the information on Part 2 of the agenda, which was exempt from publication.

An apology for absence had been received from Mark Phillips and an apology for lateness from Professor Greg Clark CBE.

The flexibility of meetings regulations, which applied to TfL from August 2020 and enabled decisions to be taken via videoconference, expired on 6 May 2021. As Members were not able to meet in person due to social distancing measures, any decisions required would be taken by the Chair, exercising Chair's Action, following the discussion of the item with Members.

TfL maintained a priority focus on safety. The Chair highlighted that there was a specific agenda item on safety which would be the first item considered at the meeting. She invited Members to raise any safety issues either under the specific agenda item or with the appropriate member of the Executive Committee after the meeting.

47/07/21 Declarations of Interests

Members on the TfL Board confirmed that their declarations of interests, as published on tfl.gov.uk, were up to date. Members, Sarah Atkins and Kathryn Cearns OBE confirmed there were no additional interests that related specifically to items on the agenda.

48/07/21 Minutes of the Meeting of the Committee Held on 20 May 2021

The Chair, following consultation with the Committee, approved the minutes of the meeting of the Committee held on 20 May 2021.

49/07/21 Matters Arising and Actions List

Howard Carter introduced the paper. All actions from previous meetings had been completed.

In reference to the amendment of Minute Reference 27/03/21 on Crossrail Programme Assurance, it was agreed that there should be assurance activity on Trial Operations between executives and key LOD1 staff, including Board Members.

[Action: Howard Smith]

The Chair requested an update to a future meeting on post-pandemic ridership and revenue predictions.

[Action: Rachel McLean]

The Committee noted the actions list.

50/07/21 Safety Update

Carole Bardell-Wise introduced the paper, which provided an update on safety on the Crossrail project, TfL Rail (MTR EL) and the Infrastructure Manager, Rail for London (Infrastructure) Limited (RfL(I)).

There were no significant operational safety incidents during Periods 1-2 2021/22 covered by the report and in Period 3 performance remained stable. Members noted details of high potential events, which had all been investigated and corrective actions implemented. Overall, there was a good reporting culture across the Crossrail and TfL teams to ensure improvements were identified and implemented.

Following the challenges with the transition to the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS), there had been significant improvements to access issues as the teams and processes were maturing. A dedicated Access Control Unit had been established and was working effectively.

A “Stepping Up” week was planned for September 2021, with a focus on safety, and Members of the Committee would be invited to attend.

[Action: Carole Bardell-Wise]

Members noted how coronavirus issues were being addressed, with an increase in self-isolating among staff. Resilience plans were performing as expected and there was currently no concern about safety, delivery or productivity.

The Committee noted the paper.

51/07/21 Project Status Update

Mark Wild presented the item and the supplementary information on Part 2 of the agenda, setting out an update on the status of the Crossrail project.

Good progress continued across the project in line with the schedule. As noted in the safety update, the transition to the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) had been challenging but processes and working practices were maturing. Several key milestones had been achieved to enable Trial Running to commence, which had moved from four trains per hour (tph) to eight tph and had just increased to 12 tph. The recent blockade had achieved a 95 per cent productivity rate, enabling the project to catch up on time lost by the transition to ROGS. Related assurance work would take several weeks to verify but was not expected to uncover any significant issues. Mark Wild commended Jim Crawford and his team for their work during the blockade.

The National Audit Office (NAO) report was welcomed and demonstrated the substantial progress made in the project since the previous NAO report in 2019. While risks remained, the project was within its current cost and time schedules as set out in the P50. The management response was the subject of an item later on the agenda (Minute 71/07/21).

Good progress continued to be made on completing and handing over stations. Progress on Canary Wharf and Bond Street stations was discussed; both remained

on target against their handover schedule.

Software for the signalling and tunnel ventilation systems was performing well but further work was required before they met the high standards required for customers. Final integration tests were starting, which would be followed by a further blockade ahead of Trial Operations.

The Committee requested visibility of the Access Improvement Plan and how construction and maintenance work was separated.

[Action: Mark Wild/Howard Smith]

The Committee noted the paper and the exempt supplementary information on Part 2 of the agenda.

52/07/21 Elizabeth Line Readiness

Howard Smith introduced the update on the performance of the TfL Rail operational service and the status of the readiness of the Infrastructure Managers for the operations and maintenance of the railway after handover from Crossrail.

TfL Rail continued to deliver excellent performance and, along with London Overground, were two of the three best performing railways in the country. The services to the east had just started operating at 12 trains per hour and would move to full length “tunnel ready” units shortly. No new software issues had been identified and the next interaction was expected to resolve the known issues.

The Committee would receive an update on the Trial Operations Plan that had been developed.

[Action: Howard Smith]

Trial Operations planning and scenarios, particularly within the context of post-pandemic, would be shared with the Committee at a future meeting.

[Action: Howard Smith]

As the opening of the Elizabeth line moved closer, Members would be briefed on the campaigns to launch the new service and public engagement.

The Committee noted the paper.

53/07/21 Finance and Risk Update

Stacey Kalita presented the update on the financial performance at Period 2 2021/22 and on risk management progress.

The project was compliant with the funding conditions from the 30 November 2020 funding and financing agreement and discussions were underway with the Greater London Authority and the Government on the next drawdown of funds.

While the P50 Anticipated Final Crossrail Direct Cost (AFCDC) was currently above the funding envelope, new cost pressures were being prudently recognised as they arose, and the project continued to maintain substantial risk and contingency budgets and a refreshed Delivery Control Schedule 1.2 baseline was creating a

programme of interventions to minimise cost to go. Members noted that demobilisation of Tier 1 contractors was key to managing costs.

Risks were being actively managed and were also monitored by the Elizabeth Line Delivery Group.

The Committee noted the paper and the exempt supplementary information on Part 2 of the agenda.

54/07/21 Project Representative Report

Stephen Hill introduced the paper on the periodic reports from the Project Representative (P-Rep) on the Crossrail project for Periods 1 and 2 2021/22 and the management responses to these reports.

The exempt Period 2 report had been accepted as a late appendix, and had been circulated in advance of the meeting, as it was important for the Committee to consider the most up to date information. In line with the commitments made by the Mayor for greater transparency on the Crossrail project, copies of the reports were available on the TfL website, with the commercially sensitive material redacted. The Period 2 report would be published shortly.

The P-Rep congratulated the team on the 12 trains per hour milestone. While good progress was being made, risks and challenges remained. The access issues following the transition to the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) procedures were being mitigated, supported by the mobilisation of the Access Control Unit and further improvements were expected in the next period. The recent blockade had been successful, but it was important that the assurance documents were closed out. The next iterations of the signalling and tunnel ventilation software and ensuring train reliability growth were all key activities prior to Trial Operations. The Delivery Control Schedule 1.2 was still being finalised.

The Elizabeth Line Readiness item being submitted to the next meeting would include more information on train reliability review points and the countdown process for Trial Operations. **[Action: Howard Smith]**

It was agreed that the cover letter to the summary of the P-Rep report in Part 2 would be included in the appendices in future reports. **[Action: Mark Wild]**

The Committee noted the paper and the exempt supplementary information on Part 2 of the agenda.

55/07/21 Elizabeth Line Programme Assurance Update

Stuart Westgate introduced the paper, which provided an update on progress with Crossrail Programme Assurance activity. Maureen Kirk and TC Chew also presented.

The first Line of Defence recognised the improved stability of the project as the new Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS)

processes bedded in and the successful ramp up of the Trial Running from four to 12 trains per hour. The project was within the overall timeframe and significant effort was being dedicated to cost reduction and efficiency to remain within budget.

Internal Audit had issued two audit reports since the last meeting of the Committee. The Demobilisation of Tier 1 Contractors was considered well controlled. The Management of Staff Costs required improvement, though this reflected a timing issue as considerable work was underway during the audit to address issues and the follow-up report was expected to confirm it was now well controlled.

The third Line of Defence, led by the Independent Investment Programme Advisory Group (IIPAG) Crossrail Sub-Group, would review Delivery Control Schedule 1.2 in detail when it was made available. It was confident that the digital management system, for the biggest digital railway in the world, was progressing. A further update would be provided to the Committee when the assessment was completed.

IIPAG was also encouraged by the success of the recent blockade and the good working relationship between Crossrail and Rail for London (Infrastructure) staff.

The safety assurance processes were ongoing, though there were concerns about retaining key resources. This was being managed tightly, including the transfer to TfL.

Members requested an update on the plans, progress and timelines in relation to demobilising the Tier 1 contractors, given their impact on the budget. A part of that process included crystallising the remaining scope within the project and determining who was best to deliver it. **[Action: Rachel McLean]**

The Committee noted the paper and the exempt supplementary information on Part 2 of the agenda and endorsed the Line of Defence 3 IIPAG Crossrail Sub-Group plan set out in Appendix 1 to the report.

56/07/21 Crossrail Complaints Commissioner's Report

Howard Carter introduced the report of the Crossrail Complaints Commissioner, Stephen Jolly, who was in attendance.

The Commissioner presented his first report since a high-level forum in May 2019. A close-out report would be provided before the office of the Commissioner closed, which would provide more analysis of the cases and issues and lessons learned.

Crossrail acknowledged the disruption to people around its sites and the Chief Executive met regularly with the communities affected and was committed to resolving any outstanding issues and complaints. The project's footprint was shrinking, and he hoped to have all issues resolved in the first half of 2022.

Ahead of the office of the Commissioner closing, the Chair would be engaged in discussions on how outstanding complaints were either closed out or who they were assigned to. **[Action: Chair/Mark Wild]**

The Committee thanked the Commissioner for his work.

The Committee noted the report.

57/07/21 National Audit Office Report - Crossrail - A Progress Review

Mark Wild introduced the National Audit Office (NAO) report. The Chair agreed to accept this report as a late item.

The report acknowledged the progress since the NAO's previous report in 2019. The report would be considered by the Public Accounts Committee in the House of Commons on 19 July 2021.

The Committee noted the report.

58/07/21 Staged Opening Update

Howard Smith presented the update on changes to the staged opening sequence of Elizabeth line services. The changes would simplify delivery of the project and provided earlier advantages to customers on the east and particularly on the west surface sections of the service. A key advantage of accelerating the frequency of services on the west was that it minimised the impact on other operators and meant services could be introduced as soon as possible, without the need to wait for the usual half-yearly Network Rail timetable change.

Approval for the change was also being sought from the Department for Transport, as joint sponsor.

The Chair, in consultation with Committee Members, approved the amendment to the Sponsors Requirement for Crossrail in relation to staged opening.

59/07/21 Members' Suggestions for Future Discussion Items

Howard Carter introduced the item and the Committee's forward plan. Suggested future agenda items captured during the meeting would be included on the forward plan.

The Committee noted the forward plan.

60/07/21 Any Other Business the Chair Considers Urgent

There was no other urgent business.

61/07/21 Date of Next Meeting

The next scheduled meeting of the Committee would be held on Thursday 30 September 2021 at 10.00am.

62/07/21 Exclusion of the Press and Public

The Committee agreed to exclude the press and public from the meeting, in accordance with paragraph 3 of Schedule 12A to the Local Government Act 1972 (as amended), when it considered the exempt information in relation to the items on the: Project Status Update; Finance and Risk Update; Project Representative Report; Elizabeth Line Programme Assurance Update; and Staged Opening Update.

The meeting closed at 5.10pm.

Chair: _____

Date: _____

Elizabeth Line Committee



Date: 30 September 2021

Item: Matters Arising and Actions List

This paper will be considered in public

1 Summary

1.1 This paper informs the Committee of progress against actions agreed at previous meetings.

2 Recommendation

2.1 **The Committee is asked to note the Actions List.**

List of appendices to this report:

Appendix 1: Actions List

List of Background Papers:

Minutes of previous meetings of the Elizabeth Line Committee

Contact Officer: Howard Carter, General Counsel

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Elizabeth Line Committee Actions from 15 July 2021 (reported to 30 September 2021 meeting)

Minute No.	Item/ Description	Action By	Target Date	Status/ Note
49/07/21 (1)	Matters Arising and Actions List: Trial Operations There should be assurance activity on trial operations between executives and key LOD1 staff, including Board Members.	Howard Smith	To be scheduled.	Pending.
49/07/21 (2)	Matters Arising and Actions List: Revenue Predictions An update on post-Pandemic revenue predictions be provided to a future meeting.	Rachel McLean	November 2021.	In progress.
50/07/21	Safety Update: Stepping Up Week A “Stepping Up” week was planned for September 2021, with a focus on safety, and Members of the Committee would be invited to attend.	Carole Bardell-Wise	Week of 27 September 2021.	In progress. All Members of the Board have been invited to attend the events during the week commencing 27 September 2021.
51/07/21	Project Status Update The Committee requested visibility of the Access Improvement Plan and how construction and maintenance work was separated.	Howard Smith	30 September 2021.	Details of the Access Improvement Plan is now included in the weekly Crossrail dashboard. Further oral update will be provided at the meeting. Complete.
52/07/21 (1)	Elizabeth Line Readiness: Trial Operations Plan The Committee to receive an update on the Trial Operations Plan that had been developed.	Howard Smith	30 September 2021.	Included in Elizabeth line Readiness and Transition Update report on agenda. Complete.
52/07/21 (2)	Elizabeth Line Readiness: Trial operations planning and scenarios Trial operations planning and scenarios, particularly within the context of post-pandemic, to be shared with the Committee at a future meeting.	Howard Smith	30 September 2021.	Included in Elizabeth line Readiness and Transition Update report on agenda. Complete.

Minute No.	Item/ Description	Action By	Target Date	Status/ Note
54/07/21 (1)	Project Representative Report: Further information requests The Elizabeth Line Readiness item being submitted to the next meeting would include more information on train reliability review points and the countdown process for Trial Operations.	Howard Smith	30 September 2021.	Included in Elizabeth line Readiness and Transition Update report on agenda. Complete.
54/07/21 (2)	Project Representative Report: Cover letter The cover letter to the summary of the P-Rep report in Part 2 would be included in the appendices in future reports.	Stephen Hill	30 September 2021.	Included in Project Representative report on agenda. Complete.
55/07/21	Crossrail Programme Assurance Update: Tier 1 contractors Members requested an update on the plans, progress and timelines in relation to demobilising the Tier 1 contractors, given their impact on the budget. A part of that process included crystallising the remaining scope within the project and determining who was best to deliver it.	Mark Wild	30 September 2021.	Update provided in the Project Status report on agenda. Complete.
56/07/21	Crossrail Complaints Commissioner's Report: Outstanding complaints Ahead of the office of the Commissioner closing, the Chair to be engaged in discussions on how outstanding complaints were either closed out or who they were assigned to.	Chair/Mark Wild	When appropriate	Pending.

Elizabeth Line Committee



Date: 30 September 2021

Item: Safety Update

This paper will be considered in public.

1 Summary

1.1 This paper provides an update on safety.

2 Recommendation

2.1 The Committee is asked to note the paper.

3 Safety Update

3.1 This paper includes a performance update for the Crossrail Programme and Infrastructure Manager, Rail for London (Infrastructure) Limited (RfL(I)) for Periods 3, 4 and 5.

3.2 Accident Performance in Period 3, 4 and 5:

- (a) there were no reportable or lost time accidents on Crossrail; and
- (b) there were no RfL(I) employee or contractor reportable or lost time accidents.

3.3 Incident Performance in Period 3, 4 and 5:

- (a) there was one Crossrail Reportable Incident in Period 3;
- (b) there was one RfL(I) Reportable Incident in Period 4; and
- (c) there was one RfL(I) Reportable Incident in Period 5.

3.4 All the above were reportable under the RIDDOR regulations.

3.5 The Reportable Incidents are summarised below:

On 21 July and 3 August 2021 respectively, two Voltage Transformers (VTs) failed. The purpose of the VTs is to provide the SCADA system with the status of the Over Head Line Equipment (OHLE) e.g. whether a section is live or not. The signalling system checks that the power is present before routing a train into an OHLE Section. If the SCADA tells the signalling system there is no power then the route will not be automatically set, and signaller needs to manually set the route.

- (a) Both VTs were located on the same structure and an assessment of other VTs across the routeway has been undertaken. A formal technical investigation is underway to ascertain the root cause in coordination with the manufacturer and an independent UK laboratory; and
 - (b) on 15 June 2021, at the Bond Street Station Project, an engineer commenced inspection and testing of an Uninterruptible Power Supply (UPS) panel located inside a communications room. During the task there was some arcing across terminals. The instrument probe was not connected to the oscilloscope at the time and one end had been connected to a live component. There was damage to the UPS by-pass and low voltage supplies and the system was immediately isolated. Following a detailed investigation and forensic analysis, the manufacturer confirmed there were no equipment or component failures. The safe system for conducting wave form testing, which is an infrequent activity, has been reviewed, verified and re-instructed to all testing engineers.
- 3.6 There was one Operational Incident in Period 5, summarised as: on 28 July 2021, a Signal Passed at Danger incident occurred in the Abbey Wood area, this is under investigation by the operator, MTR Elizabeth Line.
- 3.7 There have been three consecutive periods of zero reportable or lost time accidents. The focus and emphasis on Target Zero is evident and remains the priority in safely delivering the Elizabeth line.
- 3.8 The Health and Safety elements of the transition planning are being defined for the project as it enters its final phases. This includes the arrangements for the management and interface coordination between stakeholders and final project works. Contractor safety performance will remain a key area of focus as part of any revised governance structure
- 3.9 As part of the transition planning, a review of the future of the Safety and Health Executive Leadership Team has commenced to draw this leadership team to a considered close. A detailed impact assessment and mapping to the future Elizabeth line Health and Safety meeting cadence is underway.
- 3.10 Following several incidents at the start of Trial Running the investigation findings concluded that Planning was an underlying factor. In response to this, an independent review was commissioned across all access planning arrangements. The review recommended the appointment of a senior director to lead the Access Improvement Programme which has provided benefits for safety and it is positive to note that planning and coordination has improved, and incident numbers continue to decline. The dedicated workstream, reverting to business as usual and steady state from Period 3, should be considered a success and is providing the efficient and safe access necessary to conduct maintenance and close out work across the infrastructure.
- 3.11 Since the last report to the Committee, the Accident Frequency Rate has remained stable at 0.08. The Lost Time Index has decreased from 0.11 to 0.10. The High Potential Near Miss rate has decreased from 0.36 to 0.32. The industry recognised frequency rates are calculated over a rolling 13 periods.

- 3.12 The final Stepping Up Week begins on 26 September 2021. An extensive programme of activity is scheduled throughout the Elizabeth line. The theme is 'Safely Transitioning the Elizabeth Line' and Committee Members have been sent programme invitations.
- 3.13 The programme continues to manage the coronavirus pandemic risk with many of the measures implemented by the supply chain remaining in place. There has however been some relaxing of arrangements, agreed between the principal contractors and client where aligned with the national changes. The programme has successfully reverted to home testing as a priority in lock step with the Infrastructure Manager's strategy. Controls continue to be assured weekly by independent inspections. The programme is preparing detailed plans for a controlled return to the programme offices, in line with TfL's approach.

List of Appendices:

None

List of Background Papers:

None

Contact Officer: Mark Wild, Crossrail Chief Executive
Email: MarkWild@tfl.gov.uk

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Elizabeth Line Committee



Date: 30 September 2021

Item: Project Status Update

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the status of the Crossrail project.
- 1.2 Following the initial phase of transition, the Elizabeth Line Delivery Group (ELDG) was formed to ensure appropriate oversight of the delivery of the Elizabeth line by Crossrail and TfL Executive. The ELDG is chaired by the Commissioner. In line with the commitments made by the Mayor for greater transparency of the Crossrail project, the minutes and actions from ELDG are available on our website¹. Available reports will be uploaded to correspond to the meeting of this Committee.
- 1.3 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendation

- 2.1 **The Committee is asked to note the paper and the supplementary paper on Part 2 of the agenda.**

3 Crossrail Update

- 3.1 Crossrail Limited is in the complex final stage of delivery of the Elizabeth line with Trial Running making good progress and preparations for Trial Operations advancing. The project remains aligned to the scheduled opening of the railway to passengers in the first half of 2022.
- 3.2 The Trial Running of trains through the central tunnels began in May 2021 as part of the major railway trials taking place throughout this year. The number of trains operating in the tunnels has increased from four trains per hour (tph) in May to eight tph in June 2021 and reached 12 tph on 12 July 2021. This is a significant milestone for the programme as this is the configuration that will be in operation when the railway opens to passenger service.
- 3.3 Trial Running has broadly been positive and although there have been a number of expected settling down issues encountered, they relate to known issues in the

¹ <https://tfl.gov.uk/corporate/publications-and-reports/elizabeth-line-delivery-group>

current software configuration. These are expected to be resolved with the upcoming software release known as ELR100.

- 3.4 The ELR100 software should be the last major configuration before revenue service and is pivotal to the programme advancing through to the next stage, known as Trial Operations. It is expected that the software will be assured and commissioned in October.
- 3.5 The next couple of months will see the continuation of Trial Running 12 tph in order to build train mileage and identify any defects and bugs in the systems and software. There will also be timetable demonstrations that stimulate 24 tph during this period. This will be the service frequency in the central section when the full end-to-end Elizabeth line is operational.
- 3.6 The final railway integration tests to ensure all of the components work seamlessly together will also be completed during this period. These tests apply to the tunnel ventilation system, trains, software, signalling and power systems and can only be done at this stage now that the completed railway is available.
- 3.7 In autumn 2021, works will take place to complete elements of outstanding works in the tunnels, including the commissioning of the tunnel ventilation system upgrade works.
- 3.8 Once Trial Running is complete, ELR100 is commissioned and all final remaining works completed, it will demonstrate that the Elizabeth line can run at the performance levels necessary to move to the next phase of the programme, known as Trial Operations.
- 3.9 The countdown process for Trial Operations has commenced reflecting on the lessons learnt from the Trial Running countdown. Senior stakeholders from all organisations involved have attended the countdown meetings that have taken place so far.
- 3.10 It is forecasted that Trial Operations will commence in November 2021, at the earliest, however several key milestones need to be met before this important and final phase of the programme can commence.
- 3.11 The project completed an 18-day blockade in July 2021. During this period, Trial Running services were suspended to allow work activity to proceed uninterrupted. The objective of the blockade was to reduce the number of the remaining intricate activities in the tunnels and stations. It was a successful blockade with productivity at 95 per cent. The significantly reduced number of items that remain are being reprofiled and will be completed in the coming months.
- 3.12 The central section stations need to reach specific states of completion for the programme to be able to commence Trial Operations. On 23 August 2021, Whitechapel became the latest central section station to be transferred to TfL. As a result of the transfer, a new ticket hall and lifts have opened for customers at the station, reopening the previous entrance on Whitechapel Road with the addition of step-free access to London Underground and London Overground platforms.

- 3.13 In addition, Paddington station was transferred to TfL on 6 August 2021. With both stations now transferred, seven of the new central section stations have been transferred to TfL in little over a year – an overview of key achievements is shown in the dashboard in Appendix 1. This significant progress is the result of collaborative efforts between everyone involved in the delivery of the stations and our focus is on the remaining stations to be transferred.
- 3.14 The next station to be transferred is Canary Wharf. It is expected that, alongside the final integration of Abbey Wood station, Canary Wharf will be transferred in autumn 2021. Bond Street is on target to achieve the configuration necessary to be able to support Trial Operations, and works are continuing at the station for it to be ready for passenger service.
- 3.15 The Delivery Control Schedule (DCS) 1.2 has been agreed and forms the new baseline for all future reporting. It covers all remaining work through the opening of the central section and full Elizabeth line services from Reading and Heathrow through the central section to Shenfield and Abbey Wood.
- 3.16 The latest plans bring forward the delivery of key Elizabeth line benefits by ensuring that services from Reading, Heathrow and Shenfield can connect with the central tunnels sooner than previously planned after the opening of the central section of the railway. The earliest expected date for this is autumn 2022. Full end-to-end services are planned to commence no later than May 2023.
- 3.17 Ahead of advancing to the next stage in the programme, discussions have taken place to ensure that there is a shared agreement on the process for entering into Trial Operations, as distinct from the process set out in the Project Development Agreement (PDA), which was a product of being written prior to the Crossrail Handover Strategy and Plan. The PDA states that Trial Operations shall not commence before Handover. However, in order to facilitate a timely entry into Trial Operations, the DCS 1.2 records the decisions by each of Rail for London (Infrastructure) Limited (RfL(I)) and London Underground (LU) to commence Trial Operations at Elements prior to the full requirements of Handover. In agreement with the Joint Sponsor Team, Crossrail has detailed its support for the position taken by RfL(I) and London Underground.
- 3.18 Following the completion of the platform extension works at Liverpool Street mainline station and the introduction of the nine-car Class 345 Full Length Unit trains between Liverpool Street and Shenfield in May 2021, there are now six in operation alongside seven-car Reduced Length Units (RLU) and Class 315 'legacy' trains. Replacement of the remaining RLUs and the Class 315 trains will commence in November 2021.
- 3.19 The major redevelopment of West Drayton was completed and opened to passengers on 20 July 2021. The station enhancement works have transformed the station providing a revamped ticket hall and two new lifts enabling step-free access to the main platforms serving TfL Rail and Great Western. It will be fully step-free by the end of the year for the first time in the station's 183-year history.
- 3.20 On 26 August 2021, a new station building opened to passengers at Southall station. Constructed from glass and steel, the new ticket hall will provide a more spacious station entrance. As part of the works at the station, there are also three

new lifts and a new footbridge, which will provide step-free access to all four platforms at the station.

- 3.21 Following the completion of station works at Hayes & Harlington earlier this month, passengers can now benefit from major improvements at the station including a redeveloped station entrance made from glass and steel, a new, more spacious ticket hall and new ticket machines. Step-free-access to all platforms has now been made possible with three new lifts at the station and this now allows passengers to make step-free journeys across TfL Rail between Paddington, Reading and Heathrow.
- 3.22 Station enhancement work continues on the eastern section at Ilford and Romford stations, with entry into service of the new station buildings anticipated in early 2022.

List of Appendices:

Appendix 1: Elizabeth Line Committee: Crossrail Dashboard

List of Background Papers:

None

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ELIZABETH LINE COMMITTEE: DASHBOARD

Data date: 15-Sept-21

READER GUIDANCE:

HEALTH AND SAFETY

- A High Potential Near Miss (HPNM) is an incident that could have caused a significant injury but that did not in this instance.
 - A Lost Time Case (LTC) is an incident that resulted in an individual or individuals suffering an injury that necessitated time off from working.
 - A RIDDOR is an incident that is reportable under the RIDDOR 2013 regulations. For more detail on what is reportable, [click here](#) for the Health and Safety Executive guidance page.
- Health and Safety Performance Index (HSPI) is an aggregated contractual measure of contractor compliance with Crossrail's Golden Rules.

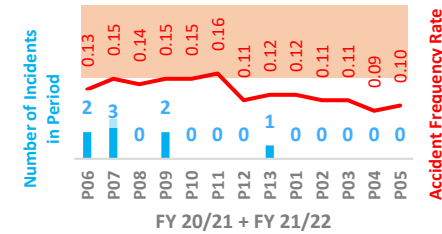
MILESTONE FORECAST SCENARIOS

- These forecast scenario dates are derived through the 4-weekly schedule and risk updates, with quantitative risk modelling (QSRA) building the P50 and P80 Scenario Dates. Note, these do not include any risk to the Trial Operations period.
- The table identifies the earliest possible dates before risk assessment which is derived from the shortest path to completion, and the P50 and P80 dates. The P80 is the forecast date that can be taken with a high degree of confidence, taking account of the remaining risks. Whilst the P50 is the calculated mid point between the earliest possible date and the P80 date)
- Crossrail's target date for the commencement of Stage 3 Revenue Service remains as early as possible, with the latest risk modelling showing that the P50 scenario remains within the August 2020 announcement which stated that Crossrail expects the Elizabeth line to open within the first half of 2022.

FOR PUBLIC SESSION

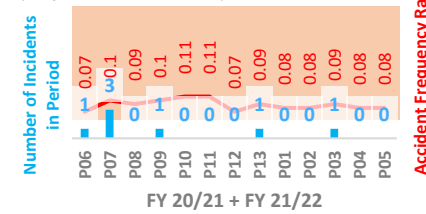
1. HEALTH AND SAFETY

Lost Time Cases

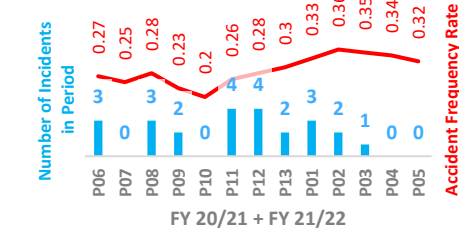


RIDDOR

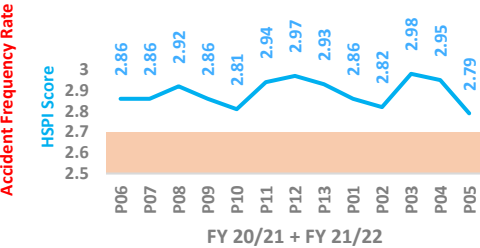
(Reportable Incidents)



High Potential Near Misses



H&S Performance Index

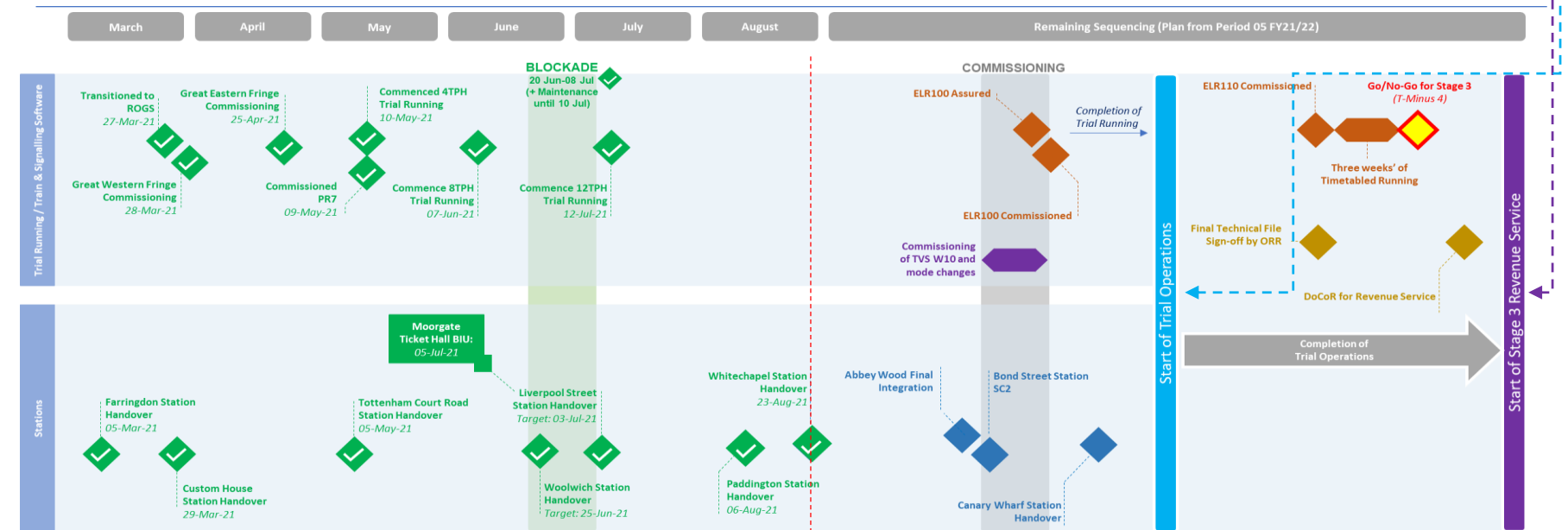


2. KEY MILESTONES – FORECAST SCENARIOS (BASED ON PERIOD 05 FY21/22 DATA)

Note: This forecast and performance to date aligns to the P50 Scenario Date that informed the August 2020 announcement that Crossrail expects the Elizabeth line to open within the first half of 2022.

Milestone	Earliest Date (Period 02 FY21/22)	P50 Scenario Date	P80 Scenario Date
Transition to a ROGS Environment	ACHIEVED – 27 March 2021; Baseline Deterministic Date: 27 March 2021; Baseline P50 Date: 14 May 2021		
Trial Running (with 4TPH) - Start	ACHIEVED – 10 May 2021; Baseline Deterministic Date: 29 March 2021; Baseline P50 Date: 17 May 2021		
Trial Operations Phase - Start	November 2021	February 2022	March 2022
Commencement of Stage 3 Revenue Service	February 2022	May 2022	June 2022

3. KEY ACHIEVEMENTS AND ACTIVITY SEQUENCING TO STAGE 3 REVENUE SERVICE



Data Cut

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Elizabeth Line Committee



Date: 30 September 2021

Item: Elizabeth Line Readiness and Transition Update

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the performance of the TfL Rail operational service and the status of the transition and readiness of the Infrastructure Managers for the operations and maintenance of the railway after handover from Crossrail.

2 Recommendation

- 2.1 **The Committee is asked to note the paper.**

3 Performance of Operational Service

- 3.1 TfL Rail (RfLI) continues to deliver a good service with the Public Performance Measure beating target during period 5, the four-week period between 25 July and 21 August 2021. We were second best in the industry with only Merseyrail performing better. The East section of the line achieved 97.2 per cent with the West section achieving 93.6 per cent of trains meeting their reliability target. Overall, the Moving Annual Average trend continues to be better than target at 95.4 per cent.
- 3.2 Passenger services between Reading and Heathrow continue to be operated by the new nine-car Class 345 trains. We are still experiencing some issues with the train control software, which we are resolving by carrying out a system reset. The impact on our customers is also being minimised by the containment measures implemented by the operator MTREI. The manufacturer, Alstom, is working through the issues which are expected to be fully resolved once the revised software has been rolled out across the fleet.
- 3.3 The number of nine-car Class 345 trains operating passenger services between Shenfield and Liverpool Street increased from three to six in July 2021, supplementing seven-car Class 345 and eight-car 'legacy' Class 315 trains. The transition of the Liverpool Street to Shenfield service to a full nine-car Class 345 operation, with up to 22 trains, will start in autumn 2021.

4 Operational Readiness

- 4.1 Trial Running resumed (following the blockade during late June and early July 2021) with 12 trains per hour (tph) in operation in the Central Operating Section. During this phase, as expected with a new system, we have identified several issues with the infrastructure and signalling, some of which, require us to

implement temporary Operational Restrictions. Majority of the issues will be resolved when the next signalling software update is rolled out later in the year.

- 4.2 The Trial Running phase continues to progress well with 12tph timetabled train movements in operation on the central operating section. To date, a number of issues encountered during Trial Running have related to known issues in the current software configuration and are expected to be resolved with the ELR100 software release.
- 4.3 As we move towards Trial Operations in the autumn, operational hours will increase, allowing us to really stress test the system and move towards our next significant objective of improving the process of moving between operational and maintenance activities. This process will confirm the railway is ready for passenger service and will be monitored through the Engineering Hours Improvement Programme. However, several key milestones need to be met before this important and final phase can commence.
- 4.4 We have established a transition countdown process as a control mechanism to monitor progress prior to Elizabeth line passenger service. The aim of the process is to ensure that the configuration of the railway and the entry criteria for Trial Operations are defined, approved and achieved. It will also capture the collective readiness perspective of the operators (Rail for London, RfLI, London Underground and MTREI).
- 4.5 We continue to make good progress against the training and assessment programme for our colleagues and despite coronavirus related challenges impacting on colleague availability, we have been able to keep open the Route Control Centre in Romford.
- 4.6 On the 6 August 2021, Paddington station, followed quickly by Whitechapel station on 23 August 2021, were handed over by Crossrail, bringing the total number of stations under our responsibility, as Infrastructure Manger, to seven. Whitechapel also became the 85th step free station across the Tube network. We continue to work closely with the Crossrail Programme team on progressing the remaining three stations. The next station to be handed over is Canary Wharf, alongside the final integration of Abbey Wood station, we expect Canary Wharf to be handed over in the autumn. Bond Street is showing encouraging signs that it will meet its requirements to be able to support Trial Operations, and Crossrail are continuing works at the station for it to be ready for passenger service.
- 4.7 Network Rail completed works at Southall on 26 August 2021 and at Hayes & Harlington on 14 September 2021; the fifth and sixth stations to be upgraded. As well as providing step-free access, other station improvements works including new ticket machines and clearer customer information were delivered. Station improvements at Ilford and Romford are expected to be completed in early 2022.

5 Joint Trial Operations Plan (JTOP)

- 5.1 The Joint Trial Operations Plan is undergoing final updates in response to stakeholder commentary and will proceed to the Trials and Operations Review Group for final approval. If approved, it will be shared with Interim Technical Assurance Panel (ITAP) by the end of September 2021.

- 5.2 The detailed programme has now reached final draft (as a ‘living’ document) to align around the revised Trial Operations duration and also to account for the Christmas and New Year period falling in the middle of the programme. This programme is now undergoing stakeholder review. Draft volunteer logistic plans are in place for all five Live Volunteer exercises and initial volunteer recruitment and registration has started with internal Crossrail and TfL staff communications delivered – current progress is just past our 50 per cent target mark.
- 5.3 A set of three early ‘opportunity’ Trial Operations exercises are being planned to be run during the Systems Testing with a Train (STT) windows between 15 and 20 September 2021. This includes plans for an evacuation exercise utilising 50 colleagues as volunteers (subject to ITAP approval of a risk assessment against the delta in numbers from the current Trial Running fire strategy of a 20 persons per train limit), which will allow us to validate our logistical, safety and security arrangements around bringing volunteers onto the infrastructure during Trial Operations.
- 5.4 Members of the Independent Advisory Panel to Crossrail undertook a ‘Red Team Review’ of the JTOP on 26 August 2021 – the overall result was an endorsement of the approach and no red flags were raised, however there were a number of actions identified to improve overall readiness for Trial Operations and build a more resilient capacity to deliver the programme.

6 Train Reliability Review Points

- 6.1 A series of train reliability review points has been established, as part of the process leading to Trial Operations and then Revenue Service. These will be reviewed at the periodic Elizabeth Line Reliability Board (ELRB).
- 6.2 The train reliability review points focus on the reliability and operational performance of the railway, during Trial Running and improvements expected through delivery of fixes and upgrades. The review points consider, in particular, the performance of the trains and train control systems in Trial Running but also performance of wider systems, transitions and the operation of the control room. This is considered against the output of performance modelling and in the context of agreed entry and exit criteria. The view of the ELRB feeds into the assurance process and links into the T-minus process for decision making.

7 Organisational Transition

- 7.1 To review additional efficiencies a series of ‘cost to go’ workshops were held during week commencing 2 August 2021. A number of actions were agreed, including the dedicated weekly sessions with senior management to address key organisational initiatives and changes. These meetings will help to facilitate efficient communications and ensure smooth decision making between RfLI/Crossrail and TfL. We now have a clear set of strategic principles that the team are working towards and the focus is on the implementation of the Crossrail ‘Lite’ organisational design. The transition programme team are also working on the production of Transition agreement documents and plans for each transition function.

8 TfL Residual Works Programme

- 8.1 The residual works team are underway progressing a number of pre and post revenue service jobs such as the additional CCTV cameras on the LU and RfL(I) estate and the decommissioning of Whitechapel temporary ticket hall. Discussions have started on how the residual works team can play a larger part in picking up work dropping out of the cost to go workshops. A weekly meeting has been set up to ensure a smooth transition of these works and speedy completion once transferred.

List of Appendices:

None

List of Background Papers:

None

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Elizabeth Line Committee



Date: 30 September 2021

Item: Finance and Risk Update

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the financial performance at Periods 4 and 5 2021/22 and on risk management progress.
- 1.2 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and other parties. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

2 Recommendation

- 2.1 **The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda.**

3 Funding

- 3.1 On 30 November 2020, a funding and financing agreement was reached between TfL, the Greater London Authority and the Government providing £825m of additional funding for the Crossrail Programme.
- 3.2 Following the funding and financing agreement of November 2020 and the TfL Board's approval of Programme and Project Authority, as at Period 5, net Programme and Project Authority is £15,459m.
- 3.3 Of the additional £825m funding, £495m has been drawn down as at Period 5.

4 Financial Performance

- 4.1 Spend in Period 5 was £41m and is £254m for the year to date. The period spend was £21m below the Delivery Control Schedule 1.1 (DCS1.1) Budget and the programme is £66m below the DCS1.1 Budget for the year to date. The number of Team CRL full time equivalent staff is 746 (note this excludes any consultancy resource). This was 38 lower than had been forecast in the January 2021 Workforce Plan.
- 4.2 Although potential new cost pressures are being prudently recognised in the Anticipated Final Crossrail Direct Cost (AFCDC) as they arise, the programme continues to maintain substantial risk and contingency budgets.

- 4.3 Work on the refreshed baseline DCS1.2 has continued in the period, and a fully updated cost and risk figure is due to be presented for approval this period. We do not anticipate that this will change materially from the Period 4 reported position of £15,939m.
- 4.4 The Period 4 P50 AFCDC was £150m above the additional funding of £825m, unchanged from the prior period. When the £825m additional funding was confirmed, the funding package was £91m lower than the P50 AFCDC at the time.
- 4.5 At higher levels of probability, current estimates of up to £1.1bn additional funding are consistent with previous estimates.
- 4.6 Additional actions are ongoing across all Sectors to identify opportunities to reduce the AFCDC and mitigate cost pressures.

5 Risk

- 5.1 There are 16 Level 1 Programme Risks at Period 4 and 165 interventions, of which 108 are complete (65 per cent).
- 5.2 The Level 1 Programme Risks summarise the significant risks that face the Programme. The review and update of Level 1 risks is now a well-established part of the Executive Group cadence, with a substantive review of risks and interventions on a bi-weekly basis. Risks are also tracked and monitored by the Elizabeth Line Delivery Group.

List of appendices to this report:

Exempt supplemental information is contained in a paper on Part 2 of the agenda.

List of Background Papers:

None

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Elizabeth Line Committee



Date: 30 September 2021

Item: Project Representative Report

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the periodic reports from the Project Representative (P-Rep) on Crossrail for Periods 3, 4 and 5. The P-Rep report for Period 5 has been received but there has not been enough time since its receipt and the publication of this paper for the report to be considered and a management response agreed. As provided for under section 100B(4)(b) of the Local Government Act 1972, the Chair has agreed to the late submission of the Period 5 report and management response to enable Members to consider the most up to date information. The exempt appendix will be sent to Members ahead of the meeting and a public redacted copy will also be published.
- 1.2 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendation

- 2.1 **The Committee is asked to note the report and the supplementary paper on Part 2 of the agenda.**

3 Project Representative

- 3.1 The P-Rep is in place to provide the Sponsors, TfL and the Department for Transport, with oversight of project delivery, advise and raise points of challenge to the Sponsors and scrutinise progress.
- 3.2 In line with the commitments made by the Mayor for greater transparency of the Crossrail project, the most recent P-Rep reports are included as part of the regular update to the Committee and are available on our website¹.
- 3.3 As with all the P-Rep reports, it has been necessary to make some redactions to the reports prior to publication to protect commercially sensitive material. We have sought to keep such redactions to a minimum. Unredacted versions of the P-Rep reports have been included in the paper on Part 2 of the agenda.

¹ <https://tfl.gov.uk/corporate/publications-and-reports/crossrail-project-updates>

3.4 In the Period 5 report (24 July 2021 to 20 August 2021), the P-Rep highlighted the following issues for particular Sponsor attention:

- (a) past general concerns remain with: schedule, cost and risk; integrated systems testing; assurance delivery; reliability growth; and stations completion;
- (b) the allocation of scope and budgets for completion, before and after the start of Passenger Service, and their respective delivery mechanisms, have yet to be confirmed;
- (c) the Cost-to-Go Workshops have confirmed that delivery within the £825m funding package is extremely challenging, and CRL is focussed on measured judgements to contain costs;
- (d) given the extent of responsibility and scope transfer required over a limited period, it is essential that CRL and RfLI work closely to ensure effective transition for Programme completion; and
- (e) achievement of key deterministic dates relies upon delivery of multiple and complex integration tests and assurance evidence during the October 2021 Blockade; expectations must be managed.

3.5 The P-Rep observations are shared with Crossrail and are discussed in detail by Crossrail, P-Rep and the Commissioner at the regular meetings of the Elizabeth Line Delivery Group. Crossrail also produces a written response to the P-Rep report that is included with the P-Rep reports on our website (with an unredacted version being included in the paper on Part 2 of the agenda).

List of Appendices:

Exempt supplemental information is contained in a paper on Part 2 of the agenda

List of Background Papers:

None

Contact Officer: Mark Wild, Chief Executive Officer, Crossrail

Email: MarkWild@tfl.gov.uk

Elizabeth Line Committee



Date: 30 September 2021

Item: Elizabeth Line Programme Assurance Update

This paper will be considered in public

1 Summary

- 1.1 This paper reports on progress with programme assurance activity across the Elizabeth Line Three Lines of Defence (3LoD) Integrated Assurance Framework (IAF) discussing: confidence of delivery; adequacy of assurance coverage; and exceptional risks requiring escalation.
- 1.2 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendation

- 2.1 **The Committee is asked to note the paper and the supplementary information in Part 2 of the agenda.**

3 Background

- 3.1 The IAF was established in June 2019, based on a 3LoD model. This model is now being updated to cover the elements of the Elizabeth line comprising:
 - (a) Line 1 – Management functions of Crossrail, TfL Rail for London Infrastructure Limited and key interfaces;
 - (b) Line 2 – Elizabeth Line Project Programme Assurance (PPA) team; and
 - (c) Line 3 - TfL Internal Audit and (as of January 2021) a sub-group of the Independent Investment Programme Advisory Group (IIPAG-EL).
- 3.2 This paper reports specifically on Line 2 (PPA), Line 3 (Internal Audit) and Line 3 (IIPAG-EL) assurance progress.
- 3.3 The teams meet periodically with a panel of advisers and the Project Representative to ensure that assurance is carried out by the right team, at the right time and to avoid duplication and minimise overlap of effort.

4 Line 2 (PPA) Assurance

- 4.1 As part of the transition arrangements between TfL and Crossrail, Line of Defence 2 (LoD2) is in the process of transferring to TfL's Risk and Assurance Directorate. Their work is being expanded to cover all the Elizabeth line entities. This is also in line with recommendations from the Independent Project Authority and IIPAG and will mean that all independent assurance is managed under one function. Further details of how this will work in practice are set out in Appendix 1.
- 4.2 Overall, the Elizabeth line is now at a more mature level of readiness and while there are a number of performance and reliability issues to be addressed, there is increased confidence that the railway is on track to revenue service, and the question is now one of precise timing of its opening.
- 4.3 LoD2 assurance continues to be undertaken, principally, on a real-time, continual assurance basis, through participation in project meetings and related activities, and providing real-time feedback to the project teams. Formal reporting is through the LoD2 Periodic Assurance Review (PAR) Reports.
- 4.4 Since the last meeting of the Committee, LoD2 has issued PAR Reports covering Periods 3 and 4 2021/22, which have provided input to the periodic Integrated Assurance Report to the Elizabeth Line Delivery Group and the Committee.
- 4.5 In relation to the timeline to complete, based upon our Period 5 assessment, it is the opinion of LoD2 assurance that the schedule for completing Crossrail is under significant pressure but considering the balance of risks is currently most likely to be on-track to open within 'first half of 2022'.
- 4.6 Regarding cost to complete, current costs and financial commitments are still within the approved budget. Costs to complete the works remain under pressure but cost reduction work is ongoing.
- 4.7 On completion of the works, the project has continued to make significant progress over the last quarter, key progress highlights including:
- (a) Trial Running in the Central Operating Section has stepped-up from four trains-per-hour (tph) to eight tph and then 12 tph;
 - (b) stations progress has seen significant steps forward with the transfer of responsibility for seven stations to their respective Infrastructure Manager; three stations to Rail for London (Infrastructure) Limited – Paddington, Woolwich and Custom House; and four stations to London Underground – Tottenham Court Road, Farringdon, Liverpool Street and Whitechapel; and
 - (c) maintenance productivity and access have increased substantially and are on an improving trajectory to support projected revenue service requirements.
- 4.8 The operational performance of the Trial Running railway is still highly variable, typically seeing delays and interruption of planned services due to reliability and functional issues. Identification and resolution of such issues is an essential, anticipated part of the commissioning, integration, and testing process toward achieving acceptable levels of passenger service.

- 4.9 A key feature, therefore, of Crossrail's current work to deliver a passenger-ready level of service reliability is its focus on the expeditious management of the process of identifying, diagnosing, attributing and implementing solutions across one or more contractors. Key indicators of Crossrail's performance in this respect should therefore start to include the average fault identification and diagnosis interval and the overall fault-to-fix cycle time. LoD2 are working with Crossrail to help develop these measures.
- 4.10 Planned LoD2 assurance activity is set out as part of the 3LoD Assurance Forward Look provided in Appendix 2 to this paper.

5 Line 3 (TfL Internal Audit) Assurance

- 5.1 The Crossrail Internal Audit Plan for 2021/22 was approved by the Crossrail Audit and Assurance Committee on 16 March 2021.
- 5.2 In Quarter 1 2021/22 (Q1) we issued two reports, have four in progress which will be completed in Quarter 2 2021/22 (Q2) and have four audits starting in Q2.

Audit Delivery

- 5.3 Summary information on the two reports issued in Q1 is set out below.
- 5.4 The Management of Staff Costs audit was found to be 'Requires Improvement' and has issues relating to inconsistencies in the approval of contract extensions and verification of timesheets, staff changes are not consolidated at Directorate level and Conflicts of Interest declarations did not cover all levels of personnel. Actions and response dates were agreed and the management team has responded. The management response covered all the issues in detail and changes have been made to reflect the Internal Audit report findings. Some actions are still outstanding but they will be closed by the agreed dates.
- 5.5 The Demobilisation of Tier 1 contractors audit looked at the strategy of demobilising Tier 1 contractors early and it was found to be 'Well Controlled'. As early demobilisation had not been put into practice, it was not possible to test the effectiveness of the strategy at that time. In order to do so, a new audit was added to the 2021/22 plan in Q1 to look at effectiveness, this is one of the audits that will complete in Q2.
- 5.6 A full list of audit reports issued during Q1 is included as Appendix 3. Audits in progress at the end of Q1 is included as Appendix 4, work planned to start in Q2 is included as Appendix 5, and details of changes to the Audit Plan is included as Appendix 6.

Management Actions

- 5.7 There were no actions overdue.

Changes to the Audit Plan

- 5.8 Line of Defence 3 (LoD3) (TfL Internal Audit) regularly review and update the Audit Plan throughout the year, in liaison with management, to reflect changing business priorities. There were three changes to the plan in Q1.
- 5.9 One audit covering Trial Running was cancelled in Q1 as it was felt other lines of defence such as IIPAG and the PPA team were better placed to do that work and avoid duplication. Two new audits were added to the plan to cover management requests and to undertake the second audit on Tier 1 demobilisation.

6 Line 3 (IIPAG-EL) Assurance

- 6.1 The Terms of Reference of the IIPAG-Elizabeth Line sub-group require the group to provide a look ahead of its proposed areas of interest and work. The work plan has been integrated into the overall Integrated Audit and Assurance Plan, which is maintained by LoD2 and is reviewed and coordinated regularly within the Crossrail Programme Assurance Group coordinated by LoD2/ PPA. Progress with the three main areas of focus is summarised as follows:
 - (a) Baseline 1.2 (BL1.2) – the sub-group has received regular updates from LoD2, the Project Representative and other stakeholders with a particular interest in the transition period between Trial Running and Trial Operations. At the time of writing, we understand the schedule has been produced but other BL1.2 products are still in development, however they should now be available for review from mid-September 2021;
 - (b) supporting the work of the Railway Assurance Board - Crossrail (RAB-C) and its successor, the Integrated Technical Assurance Panel (ITAP) – the sub-group has engaged with RAB-C and ITAP, gaining an understanding of the planning arrangements and implications for closing out the remaining assurance dependencies; and
 - (c) digital railway – the sub-group has completed its review of this area including an assessment of cyber security concerns and the report is on-track to be issued shortly, by the end of Q2.
- 6.2 Work in these areas does not seek to duplicate other assurance that is happening elsewhere, but to provide and establish a degree of confidence in these critical areas for getting the railway into passenger service.
- 6.3 The overall assessment by LoD3 (IIPAG-EL sub-group) is that the overall assurance framework has continued to operate effectively over the last quarter. We note the progress responding to our recommendations in our January 2021 report into effectiveness of programme assurance.

7 Infrastructure and Projects Authority Critical Friend Review

- 7.1 The Infrastructure and Projects Authority (IPA) is the Government's centre of expertise for infrastructure and major projects reporting to the Cabinet Office and HM Treasury. The IPA conducts regular independent reviews of selected major UK projects.

7.2 In November 2020, the IPA conducted a follow-up critical friend review of Crossrail and recommended seven actions of which four are complete and the remaining three are being addressed progressively as part of Crossrail's delivery and completion programme.

8 Integrated Audit and Assurance Plan

8.1 The 3LoD IAF maintains an integrated plan of assurance activity coordinated through the Crossrail Programme Assurance Group forum. A summary of planned assurance activities is summarised in Appendix 2.

List of Appendices:

Appendix 1 – Integrated Assurance Approach to Elizabeth Line Readiness and Crossrail Transition

Appendix 2 – 3LoD Assurance Forward Look

Appendix 3 – Line 3 (TfL Internal Audit) Reports issued in Q1 2021/22

Appendix 4 – Line 3 (TfL Internal Audit) Work in progress at the end of Q1 2021/22

Appendix 5 – Line 3 (TfL Internal Audit) Work due to start in Q2 2021/22

Appendix 6 – Line 3 (TfL Internal Audit) Changes to the 2021/22 Audit Plan

List of Background Papers:

None

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Appendix 1 – Integrated Approach to Assurance of Crossrail Transition into TfL

1 Introduction

- 1.1 This paper, prepared jointly by LoD2 and LoD3, sets out the response to the action from the 17 March 2021 Audit and Assurance Committee meeting as summarised below.

Integrated Assurance Plan 2021/22

Staff to consider how best assurance work on Enterprise Risk 14 (The Opening of the Elizabeth Line) could be integrated as part of the transition phase of Crossrail into TfL.

- 1.2 This progress update sets out how the assurance organisation is being further integrated and how the integrated assurance will approach the transition of Crossrail into TfL.

2 Integrated Approach to Assurance

Organisational Arrangements

- 2.1 The transition of Crossrail's LoD2/Project and Programme Assurance (PPA) function has already commenced with reporting to TfL's Director of Risk and Assurance. The Crossrail Chief Finance Officer and Executive Team will continue to receive Programme Assurance support and reporting as previously.
- 2.2 The role of the transitioned assurance function will expand, seeing both LoD2 and LoD3 encompass the wider Elizabeth line related organisations and functions beyond the immediate Crossrail project and interfaces, to include:
- (a) RfL;
 - (b) RfLi;
 - (c) LU;
 - (d) Other units of TfL where relevant; and
 - (e) Engagement as required with Network Rail, MTR, and key suppliers such as Alstom and Siemens.
- 2.3 The transition of this function will apply the following principles:
- (f) Assurance will be delivered by the most appropriate party within the three lines model;
 - (g) The Crossrail Assurance Group (retitled ELPAG) will continue to provide coordination of assurance, now across the broader Elizabeth line organisation;
 - (h) Continue with the "real time" assurance supplemented by targeted reviews; and
 - (i) The target for completing the assurance transition is end-September 2021.

Proposed Lines of Enquiry

- 2.4 The approach to assurance of the principal stated risk 'Enterprise Risk 14 – The opening of the Elizabeth Line', as stated in the introduction to this paper, firstly

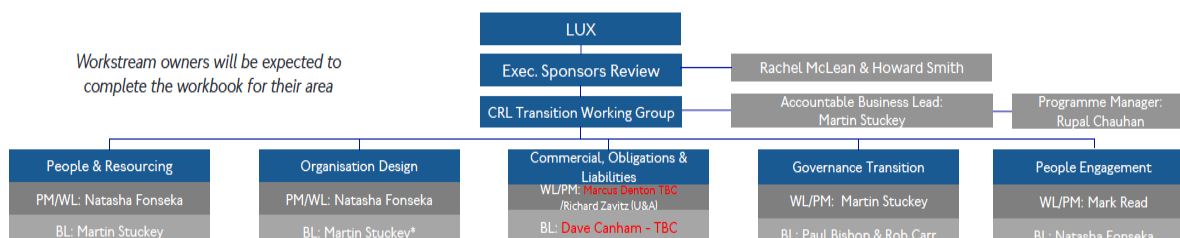
recognises the pertinent underpinning objectives relating to this risk as (in no particular order) being:

- (a) Completion of the required Crossrail project works;
- (b) Infrastructure Operations and Maintenance readiness;
- (c) Service Operations Readiness;
- (d) Rolling Stock Integration;
- (e) National Rail Network Integration;
- (f) Reliability and performance of the integrated railway system
- (g) Closeout of the Crossrail project; and
- (h) Transition of key staff, information, processes and procedures, and commercial, contractual and regulatory liabilities to TfL (or its pertinent operating companies).

2.5 To this end, with regard to items (a) to (g) above, the LoD2 and LoD3 functions will continue to operate based on the terms of engagement adopted to-date but with additional engagement in the areas of operations, rolling stock and the Network Rail interface. With regard to item (h) Transition, as identified in the Committee action, our proposed approach will pursue the following key lines of enquiry relating to the key risks as follows:

Transition of Crossrail people	To provide assurance that the controls around the transition of the Crossrail team are adequate and effective.
Transition of Crossrail assets	To provide assurance that the controls around the transition of Crossrail assets are adequate and effective – this will include TfL’s readiness to accept these assets.
Transition of Crossrail obligations	To provide assurance that the controls around the transition of Crossrail obligations are adequate and effective.

2.6 First steps in undertaking the transition of assurance work will be to propose Terms of Reference with the joint Crossrail – RfLI Transition Planning team and engage in regular progress review meetings to determine key sources of risk and adequacy of controls. Below is an extract from the Elizabeth Line Transition Working Group plan illustrating the main workstreams:



3 Conclusion

3.1 The above described plans and proposals will be incorporated into the updated Integrated Audit and Assurance Plan and form the basis of forward assurance delivery, coordination and reporting.

Transport for London Elizabeth Line Committee

3 Lines (3LoD) Assurance Lookahead

Appendix 2

Period	LoD1 Events	LoD2 - PPA	LoD3 - TFL (IA)	LoD3 – IIPAG-EL	Senior Advisors
5	Trial Running in progress	Periodic Assurance Review P5 Cost Forecasting Review TAR 28 DCS 1.2 Assurance Review	(Quarterly based planning) 21 049 Employer's Completion Process To provide assurance that the controls around the Employer's Completion Process are effective	DCS (Delivery Control Schedule) and periodic reporting (TBC) Digital Assets and Systems Configuration Report	CG1 - Oversight of RfL/MTR ability to introduce passenger services in a robust and timely way from Trial Operations to Stage 5B and 5C.
6	Trial Running in progress	Periodic Assurance Review P6 Stations Systems Integration TAR26 Cost Pressures and Root Cause Review TAR 27	21 051 Information Management and Transfer To review the effectiveness of controls around information management and transfer from Crossrail to TfL	DCS (Delivery Control Schedule) Operational Readiness	PG1 - TO Configuration and eiTO Criteria, Auto Reverse, Assurance Programme for eiTO. Tracking TVS Testing Programme PT1 - Monitoring of Siemens ELR100 Development Assisting in the oversight of the transition of the engineering resources and processes from Crossrail to RfLI.
7	Stations SC3 Trial Running	Periodic Assurance Review P7 Trial Running Progress Review TAR29	21 061 Demobilisation of Tier 1 Contractors -phase 2 To provide assurance that the controls around Tier 1 contractor demobilisation are adequate and effective	DCS (Delivery Control Schedule) and periodic reporting	AP1 – Rolling Stock and Operational Readiness
8		Periodic Assurance Review P8 Trial Operations Readiness Review DCS 1.2 Assurance Review and Reporting	21 062 Disposal of Temporary Assets To provide assurance that the controls around the disposal of temporary assets are adequate and effective	DCS (Delivery Control Schedule) and Assurance Report	PS1 – C660 and Stations Systems, RfLI Organisational Readiness

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Transport for London Elizabeth Line Committee

Internal audit reports issued in Q1 2021/22

Appendix 3

- Two reports were issued during the quarter

Enterprise Risk	Directorate	Ref	Audit title	Summary of Finding	Conclusion	H	M	L
ERI4 Opening of the Elizabeth Line	Crossrail	20 508	Demobilisation of Tier I contractors	There were no issues identified as part of this audit. However, some were noted that will be reported as part of audit 20 504 on the Alternative Delivery Model. This audit (20 508) was also split into two parts, the second part of which will be undertaken as part of the 2021/22 plan.	Well Controlled	0	0	0
ERI4 Opening of the Elizabeth Line	Crossrail	20 505	Management of Staff costs	<p>1) Formal guidance to staff covering Workforce Planning does not reflect current practice, or in the case of contract extensions needs to be put in place.</p> <p>2) Arrangements for verifying and approving timesheet or timecard entry vary across the contractor base. Adherence to process can be patchy, and in some areas not sufficient to provide assurance that time is monitored consistently through to invoice.</p> <p>3) Annual Conflict of Interest exercises are focused on the Senior Leadership Team and do not provide sufficient coverage of the business. Frequency needs to increase, and the timeframe within which escalations considered improved.</p> <p>4) Staff change is not yet consolidated as a Directorate level input to Workforce Planning. Previously proposals were grouped together and templated through the Internal Resourcing Group.</p>	Requires Improvement	0	4	1

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Transport for London Elizabeth Line Committee

Work in progress at the end of Q1 2021/22

Appendix 4

- Four audits were in progress at the end of the quarter

Enterprise risk	Directorate	Ref	Audit title	Objective	Current Status
ERI4 Opening of the Elizabeth Line	Crossrail	20 502	Management of works deferred to LU	To provide assurance that current identified residual scope is managed effectively	In progress
ERI4 Opening of the Elizabeth Line	Crossrail	20 504	Alternative Delivery Model Strategy	To provide assurance that the alternative delivery model strategy is adequate	Reporting
ERI4 Opening of the Elizabeth Line	Crossrail	20 507	CRL HSE framework	To provide assurance over the adequacy and effectiveness of the HSE framework	In progress
ERI4 Opening of the Elizabeth Line	Crossrail	20 511	Monitoring Professional Service and Framework Development Consultants (FDCs).	To provide assurance that PSCs and FDCs are being managed and monitored by Crossrail in an effective manner	In progress

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Transport for London Elizabeth Line Committee

Work planned to start in Q2 2021/22

Appendix 5

- There are four audits planned to start during the quarter

Enterprise risk	Directorate	Ref	Audit title	Objective
ERI4 Opening of the Elizabeth Line	Crossrail	2I 049	Employer's Completion Process	To provide assurance that the controls around the Employer's Completion Process are effective
ERI4 Opening of the Elizabeth Line	Crossrail	2I 05I	Information Management and Transfer	To review the effectiveness of controls around information management and transfer from Crossrail to TfL
ERI4 Opening of the Elizabeth Line	Crossrail	2I 06I	Demobilisation of Tier I Contractors - phase 2	To provide assurance that the controls around Tier I contractor demobilisation are adequate and effective
ERI4 Opening of the Elizabeth Line	Crossrail	2I 062	Disposal of Temporary Assets	To provide assurance that the controls around the disposal of temporary assets are adequate and effective

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Transport for London Elizabeth Line Committee

Changes to the 2021/22 audit plan

Appendix 6

- There were three changes to the plan since the last Committee: 2 new and 1 cancellation

Ref	Audit Title	Status	Audit Comments/objective
21 061	Demobilisation of Tier I Contractors - phase 2	New	To provide assurance that the controls around Tier I contractor demobilisation are adequate and effective
21 062	Disposal of Temporary Assets	New	To provide assurance that the controls around the disposal of temporary assets are adequate and effective
20 503	Readiness for Trial Running	Cancelled	As the name and scope will change and it will take place in the 2021/22 financial year, it was decided the most practical thing would be to cancel this audit and carry out any work required under a new title and number. This will be done in consultation with other assurance providers to ensure no gaps or duplication. At present there is no audit in the 2021/22 plan to cover this topic

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Elizabeth Line Committee



Date: 30 September 2021

Item: Members' Suggestions for Future Discussion Items

This paper will be considered in public.

1 Summary

1.1 This paper presents the current forward plan for the Committee and explains how this is put together. Members are invited to suggest additional future discussion items.

2 Recommendation

2.1 **The Committee is asked to note the forward plan and is invited to raise any suggestions for future discussion items.**

3 Forward Plan Development

3.1 The Board and its Committees and Panels have forward plans. The content of the plans arises from a number of sources:

- (a) standing items for each meeting: minutes; matters arising and actions list; and any regular reports, including the Project Representative report;
- (b) regular items which are for review and approval or noting;
- (c) matters reserved for approval or review; and
- (d) items requested by Members: The Chair of the Committee will regularly review the forward plan and may suggest items. Other items will arise out of actions from previous meetings (including meetings of the Board or other Committees and Panels) and any issues suggested under this agenda item.

4 Current Plan

4.1 The current list of standing items is attached at Appendix 1. Like all plans, it is a snapshot in time and items may be added, removed or deferred to a later date.

List of appendices to this report:

Appendix 1: Elizabeth Line Committee Forward Plan 2021/22

List of Background Papers:

None

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Email: HowardCarter@tfl.gov.uk

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Elizabeth Line Committee Forward Plan 2021/22

Appendix 1

Membership: Heidi Alexander (Chair), Anne McMeel (Vice-Chair), Professor Greg Clark CBE, Dr Nelson Ogunshakin OBE, Mark Phillips, Sarah Atkins, Kathryn Cairns OBE (Department for Transport Representative)

Standing Items		
Safety Update	Commissioner	
Project Status Update	Crossrail Chief Executive	
Elizabeth Line Readiness	Commissioner	
Project Representative Report	Crossrail Chief Executive	
Crossrail Programme Assurance Update	Chief Finance Officer, Crossrail	
Finance and Risk Update	Chief Finance Officer, Crossrail	
25 November 2021		
Enterprise Risk Update - Opening of the Elizabeth line (ER14)	Managing Director, London Underground	
23 March 2022		
Complaints Commissioner for Crossrail Final Report	Chief Finance Officer, Crossrail	

Dates of Future Meetings

25 November 2021

26 January 2022

23 March 2022

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