

Agenda

Meeting: Elizabeth Line Committee

Date: Thursday 15 July 2021

Time: 14:00

Place: Teams Virtual Meeting

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).

Further Information

If you have questions, would like further information about the meeting or require special facilities please contact: Sue Riley; 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 7 July 2021

12 National Audit Office Report - Crossrail - A Progress Review (Pages 1 - 8)

Chief Executive Officer, Crossrail

The Committee is asked to note the report and the management response.

Elizabeth Line Committee



Date: 15 July 2021

Item: National Audit Office Crossrail Report

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to provide the Committee with an overview of the recommendations from the National Audit Office (NAO) in its report, Crossrail – a progress update, that was published on its website on 9 July 2021¹. A management response to the recommendations has also been provided with the status of implementing actions. These are set out in Appendix 1.
- 1.2 On 19 July 2021, the Commissioner and the Chief Executive Office Crossrail will join the Department for Transport Permanent Secretary and Director for a House of Commons Public Accounts Committee Hearing to discuss the NAO report.

2 Recommendation

- 2.1 **The Committee is asked to note the paper, the NAO's report and Crossrail's management response to the report.**

3 Background

- 3.1 The NAO last reported on the programme in May 2019. The fieldwork for this audit was undertaken during early 2019, when the programme was in a recovery state following the issues uncovered in 2018 around programme delivery, cost and premature demobilisation. In its 2019 report, the NAO made four recommendations around: refining the plan, establishing a realistic cost estimate, rebuilding capacity and capability and passing on the lessons learnt to other major projects.
- 3.2 The programme was in the midst of working towards addressing all of these recommendations at the time through the development of the Earliest Opening Programme, which sought to halt the repetition of missed milestones. As a result, in April 2019, an anticipated opening window of October 2020 to March 2021 was broadcast by the programme.
- 3.3 Two years on, the NAO recognises the progress that has been made since its last report and advise of a “more stable position” being demonstrated by the latest schedule forecasts. The NAO's latest report examines:

¹ <https://www.nao.org.uk/>.

- (a) progress on the programme and the underlying reasons for the cost and schedule increases that have occurred since the NAO last reported in May 2019;
 - (b) the main risks that the sponsors and the Crossrail team must manage to open the Elizabeth line successfully with a focus on opening the central section between Abbey Wood and Paddington; and
 - (c) what needs to be done to realise benefits from the investment in the Elizabeth line.
- 3.4 The report is based on NAO's review of Crossrail and sponsor documents, assessments by external reviewers and interviews with key figures involved in the delivery and oversight of the programme. The majority of its fieldwork was conducted between November 2020 and March 2021 and was done remotely due to the national lockdowns and social distancing rules in response to the coronavirus pandemic.

4 NAO key findings

- 4.1 Overall, our view is that the report is fair and balanced, based on the evidence available at the time of the audit. The NAO has recognised the significant progress made by the programme over the last two years with the majority of major construction work complete and a number of assets handed over.
- 4.2 The NAO makes a number of key observations and five recommendations but there are no significant or “new” discoveries made by the audit. This is, in part, due to the high level of transparency demonstrated on the programme over the last two years.
- 4.3 The NAO summarises that the reasons for schedule slippage and costs increasing was due to the programme being further from completion than the new management team understood when it set the revised cost and schedule in April 2019. While the new management team, Crossrail board and organisation was rebuilt during 2019, there was still a significant gap in awareness of just how much additional work was still required to complete the railway.
- 4.4 The NAO's evidence indicates that the current opening window of passenger service in the first half of 2022 remains correct and is unchallenged. This report does publish, for the first time, significant detail on how the programme plans to a deterministic (January 2022), P50 (April 2022) and P80 (June 2022) set of delivery dates.
- 4.5 The NAO identifies that the programme has continued to suffer from low productivity levels, albeit with significant improvements during the construction blockades in 2020/21. The NAO also highlights the lack of effective commercial levers with the Tier 1 contractors despite a number of mitigations and initiatives over the last two years to allay some of these problems.
- 4.6 A summary of the key findings articulated by the NAO in its report are listed below:

- (a) while the programme has been delayed further since we last reported, significant progress has been made since 2019;
- (b) the revised schedule and budget agreed between Crossrail Limited and the sponsors in April 2019 was unachievable because the programme was further from being complete than they understood;
- (c) the COVID-19 pandemic added further cost and delay, but Crossrail Limited took the opportunity to improve its planning of remaining work;
- (d) neither Crossrail Limited, the sponsors nor the contractors appreciated how complex it would be to bring together all of the separate systems and assets required and assure them as safe and working, or how long it would take;
- (e) Crossrail Limited did not have sufficiently effective commercial levers with its main contractors to prevent further cost and schedule increases, despite trying a number of initiatives;
- (f) it took longer than Crossrail Limited expected to fill critical staff vacancies;
- (g) several organisations are now responsible for bringing the Elizabeth line into service, which adds complexity;
- (h) Crossrail Limited has achieved a key milestone by starting trial running, but completing the remaining work during trial running and trial operations is complicated, and creates new risks to cost and schedule;
- (i) the current programme cost estimate exceeds available funding;
- (j) there are still significant issues that could affect the cost and schedule;
- (k) changes in people's travel patterns may affect the expected transport benefits of the Elizabeth line; and
- (l) the sponsors need to do more to plan for and deliver wider benefits from the Elizabeth line, such as supporting economic growth.

5 Lessons Learnt

- 5.1 In the course of completing this report, the NAO has further developed its lessons for rail programmes and other complex programmes as originally presented in their reports, *Lessons learned from major programmes*, and *Framework to review programmes*. The lessons relate to delivering and resetting a programme and are included in their current report. We believe that the lessons are important and are valuable for future programmes.
- 5.2 These lessons fit in well with Crossrail's Learning Legacy that launched in 2016 and will continue to be added to with lessons focusing on project close out and completion..

List of Appendices:

Appendix 1: NAO report recommendations and management response

List of Background Papers:

None

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

The NAO makes five recommendations in its July 2021 report, which have been accepted by the Crossrail management team. The table below lists these recommendations and provides examples of the live work already in progress to address them:

NAO Recommendation	Crossrail Management Response
<p>a Transport for London (TfL) should identify the skills and individuals it needs to retain to complete the programme, and those it thinks it will need to retain to run the Elizabeth line effectively once in service.</p>	<p>The Elizabeth line Transition Programme defines and manages the transition of the organisational and functional structures as the Crossrail project moves forward to completion. To ensure full alignment to TfL’s requirements this is being led by the Chief Operating Officer Elizabeth Line supported by the Chief Finance Officer – Crossrail.</p> <p>Two priorities have been identified for this workstream. The first is to identify the personnel who have critical and scarce skills that are required to support completion of remaining activities to complete the Elizabeth line and develop robust contingency arrangements that support the programme. This is already being proactively managed through the Crossrail workforce plan and reviewed on a weekly basis. Resources are exiting the programme in a controlled way and circa 140 key individuals have been identified as key to completing the programme with associated retention plans in place as and where required. The critical skills and personnel needed to complete the programme as well as to operate the Elizabeth line have been identified and plans are being developed to mitigate the risk of losing key personnel.</p> <p>The second priority is to develop the organisational transition plan for Trial Operations and beyond. These steps will lead to a controlled handover and transfer into TfL. This will include the “folding in” of various departments under the Programme Directorate as the programme completes and personnel are demobilised in line with the workforce plan. While recognising that there is still significant work to complete the programme, and that is best done by the existing Crossrail delivery organisation, the organisational transition plan is also seeking to transfer some of the support functions to TfL where these could then be managed by TfL staff for the close-out activities. This will support the Crossrail Learning Legacy project to pass on lessons learnt and knowledge transfer from the programme to other major programmes.</p>

<p>b</p>	<p>Crossrail Ltd should work with Rail for London Infrastructure (RfLi) to set out a clear plan for handing the Elizabeth line over to RfLi. The plan should include what work is being transferred into operational testing, what work is being deferred until the Elizabeth line is in service and who is responsible for, and a process to monitor and report on progress of these tasks, including how much it has cost to complete the railway.</p>	<p>A refresh of the programme’s current baseline schedule (DCS1.1) will be used in the interim to control the project. This refresh, termed as DCS1.1A or DCS1.1(J6), is fully integrated and holistic up to Stage 3 Revenue Service and fine tunes the deterministic baseline. This “interim” schedule is supported and monitored at multiparty forums such as by the Passenger Service Steering Group (PSSG) and the “T- minus” countdown to Trial Operations that will commence in the next two periods. The schedule represents the best example of handover integration that the programme has seen to date.</p> <p>In parallel work continues in relation to building reliability and encouraging reliability growth which is jointly reviewed at the Reliability Board. Additionally, a CRL Data Reporting, Analysis & Corrective Action System is used at this stage to report and respond to incidents occurring during this phase of the project.</p> <p>DCS1.2 is also being formed as greater clarity around the ELR200 software to support Stages 4 and 5 emerges. This will be completed in the next 2 periods</p>
<p>c</p>	<p>TfL and the Department should set out a benefits realisation strategy and plan for the Elizabeth line which they update over time. This should:</p> <ul style="list-style-type: none"> • Set out clearly the intended benefits of the Line, including those identified during construction and a way of identifying other benefits not originally identified in the business case. • Bring together the work they have already done on benefits in one place. 	<p>The Crossrail programme will add an estimated £42bn to the economy of the UK, dramatically improving transport links in London and the South East, driving housebuilding, supporting wider regeneration and creating jobs and business opportunities right around the UK. Even with the impact of the coronavirus pandemic, the long-term value of the Elizabeth line to the UK economy is expected to far outweigh the costs. This is supported by both the current benefit cost ratio (BCR) analysis and current business planning forecasts and assumptions.</p> <p>The BCR measures how much benefit can be expected for each unit of cost (investment). This calculation takes account of the net financial effect (both costs and revenues) against transport and social benefits. Journey time savings, road decongestion and reduction in emissions are key benefits included. The wider BCR includes wider economic benefits that takes in account the overall value to the UK economy, including for example move to more productive jobs and labour force participation. The current BCR is 1.36 to 1 and incorporates a three year delay to the project and a final cost of £19bn. The BCR increases to 1.87 to 1 when the wider benefits are taken into account. The BCR is</p>

<ul style="list-style-type: none"> • Set out how benefits will be monitored and measured over time. • Identify who is responsible for delivering different benefits, and where this is another organisation, who is responsible for influencing that organisation. • Assess the risks to achieving benefits and the steps TfL and the Department can take to mitigate them. • Set out governance arrangements for the strategy, including how benefits management will be included in TfL's corporate management information to ensure a strong focus on benefits beyond the delivery phase of the programme. 	<p>reported to DfT value of time to be consistent with what is reported in the NAO report. A higher BCR is produced when using the value of time ordinarily used by TfL.</p> <p>During construction, Crossrail regularly published a Sustainability Report to demonstrate the benefits realised by supporting a nation-wide supply chain, skills development and sustainable delivery.</p> <p>Benefits management is important to ensure that the benefits are defined, measured and optimised. Industry approach and best practice to benefits management has developed and matured significantly throughout the lifetime of the Crossrail project and is now considered an essential function for any large-scale, major infrastructure intervention. To date, we have worked to manage the benefits through a comprehensive evaluation study and continued assessment of the value for money and revenue forecasting.</p> <p>Work is now underway to bring these components together in a benefits management strategy that will clearly define the realised and expected benefits of the project and show alignment to the project outcomes/deliverables. This includes a plan of activities to realise the greatest value and manage risks to realising the benefits. These activities will have clear owners and will be set around a fully defined monitoring programme with associated governance arrangements. As the strategy is being developed at a later stage of the project, we have completed a review of the available guidance to ensure that it is applied in the most appropriate and pragmatic way.</p> <p>The benefits management strategy will enable us to better manage benefits that we are directly responsible for (principally, transport), but also engage with the wider stakeholder community (including the Greater London Authority, local authorities and business community) to ensure that benefits that TfL is not directly responsible for are managed and maximised to the greatest extent possible (principally benefits outside of London and wider benefits such as regeneration).</p>
---	---

d	<p>The Department and TfL should examine the types of benefits realised by the Crossrail programme and Elizabeth line, and those benefits expected but not achieved, and take account of their learnings in the business cases and benefits strategies for other major transport programmes.</p>	<p>We have strengthened our benefits management capability within our investment planning teams to manage, document and report on the benefits of schemes as they progress through the project lifecycle. Our benefits team will ensure that our initiatives and potential future initiatives combine to collectively deliver against strategic outcomes and will look to integrate the learnings from the Crossrail project on business cases and benefits strategies.</p>
e	<p>RfLi should set out a plan to realise and monitor the benefits of running a fully digital railway.</p>	<p>The operational railway systems and the software and hardware that they use have been progressively tested and refined through the commissioning processes for the railway, including dynamic testing and now Trial Running. Criteria have been set that the systems need to achieve before passenger service can commence. The reliability of the whole railway – of which the operational railway systems are critical determinants – is driving the priorities for fixes to software and the optimisation of the digital assets and this is being led by the Chief Operating Officer for the Elizabeth line.</p> <p>Another dimension of the digital railway are the systems which support the activities of the operators to control and maintain the assets. Systems have already been created on the TfL IT estate for this purpose where they are supported by TfL’s Technology and Data team.</p> <p>We welcome the chance to do an analysis of the benefits of a digital railway and note that it will need to be timed to capture a reasonable steady state after opening.</p>