

Agenda

Meeting: Programmes and Investment Committee

Date: Wednesday 19 July 2023

Time: 10:00am

**Place: Conference Rooms 1 and 2,
Ground Floor, Palestra, 197
Blackfriars Road, London, SE1
8NJ**

Members

Ben Story (Chair)

Dr Nelson Ogunshakin OBE (Vice-Chair)

Seb Dance

Dr Lynn Sloman MBE

Peter Strachan

Cllr Kieron Williams

Government Special Representative

TBC

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: Zoe Manzoor, Secretariat Officer; Email: v_ZoeManzoor@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
Tuesday 11 July 2023

**Agenda
Programmes and Investment Committee
Wednesday 19 July 2023**

1 Apologies for Absence and Chair's Announcements

2 Declarations of Interests

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.

**3 Minutes of the Meeting of the Committee held on 17 May 2023
(Pages 1 - 10)**

General Counsel

The Committee is asked to approve the minutes of the meeting of the Committee held on 17 May 2023 and authorise the Chair to sign them.

4 Matters Arising and Actions List (Pages 11 - 14)

General Counsel

The Committee is asked to note the updated actions list.

5 Use of Delegated Authority (Pages 15 - 18)

General Counsel

The Committee is asked to note the paper.

**6 Investment Programme Report - Quarter 4: Periods 10, 11, 12 and 13,
2022/23 (Pages 19 - 96)**

Chief Capital Officer and Director of Investment Delivery Planning

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

7 Independent Investment Programme Advisory Group Quarterly Report (Pages 97 - 100)

General Counsel

The Committee is asked to note the Independent Investment Programme Advisory Group's quarterly report and the exempt supplementary information on Part 2 of the agenda.

8 TfL Project Assurance Update (Pages 101 - 102)

General Counsel

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

9 Technology Programme 2023/24 and 2024/25 (Pages 103 - 138)

Director of Investment Delivery Planning and Director of Strategy and Chief Technology Officer

The Committee is asked to note the paper and the exempt supplementary paper on Part 2 of the agenda and to approve additional Programme and Project Authority for the Technology Programme.

10 London Underground Four Lines Modernisation Programme
(Pages 139 - 148)

Chief Capital Officer

The Committee is asked to note the paper and the exempt supplementary information on Part 2 of the agenda and approve additional unbudgeted Financial Authority to fully align this with existing Programme and Project Authority and to approve additional Procurement Authority for the Automatic Train Control contract in the sum requested in the paper on Part 2 of the agenda.

11 Streets, Bus and Rail and Sponsored Services (RSS) Renewals
(Pages 149 - 178)

Director of Investment Delivery Planning

The Committee is asked to note the paper and approve the additional Programmes and Project Authority for the Streets, Bus and Rail and Sponsored Service (RSS) Renewals Programme and to approve unbudgeted Financial Authority of £44.3m for DLR Station Controllers

12 Rail and Station Enhancements Programme (Pages 179 - 196)

Chief Capital Officer and Director of Investment Delivery Planning

The Committee is asked to note the paper and approve an increase of Programme and Project Authority for the Rail and Station Enhancements Programme.

13 Safe and Healthy Streets Programme (Pages 197 - 208)

Director of Investment Delivery Planning

The Committee is asked to note the paper and the exempt supplementary information on Part 2 of the agenda and to approve additional Programme and Project Authority for the Safe and Healthy Streets Programme to continue delivery of Bus Enhancement projects and to approve additional Procurement Authority for the sum set out in the supplementary information on Part 2 of the agenda in relation to the Old Street Roundabout project.

14 Capital Efficiencies Report 2022/23 (Pages 209 - 226)

Chief Capital Officer

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

15 Enterprise Risk Update - Delivery of Key Projects and Programmes (ER8) (Pages 227 - 232)

Chief Capital Officer

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

16 Members' Suggestions for Future Discussion Items (Pages 233 - 236)

General Counsel

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

17 Any Other Business the Chair Considers Urgent

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

18 Date of Next Meeting

Thursday 5 October 2023 at 10:00am

19 Exclusion of the 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

20 Investment Programme Report - Quarter 4: Periods 10, 11, 12 and 13, 2022/23 (Pages 237 - 258)

Exempt supplementary information relating to the item on Part 1 of the agenda

- 21 Independent Investment Programme Advisory Group Quarterly Report** (Pages 259 - 262)
Exempt supplementary information relating to the item on Part 1 of the agenda
- 22 TfL Project Assurance Update** (Pages 263 - 268)
Exempt supplementary information relating to the item on Part 1 of the agenda
- 23 Technology Programme 2023/24 and 2024/25** (Pages 269 - 284)
Exempt supplementary information relating to the item on Part 1 of the agenda
- 24 London Underground Four Lines Modernisation Programme** (Pages 285 - 304)
Exempt supplementary information relating to the item on Part 1 of the agenda
- 25 Safe and Healthy Streets Programme** (Pages 305 - 314)
Exempt supplementary information relating to the item on Part 1 of the agenda
- 26 Capital Efficiencies Report, 2022/23** (Pages 315 - 332)
Exempt supplementary information relating to the item on Part 1 of the agenda
- 27 Enterprise Risk Update - Delivery of Key Projects and Programmes (ER8)** (Pages 333 - 338)
Exempt supplementary information relating to the item on Part 1 of the agenda

Agenda Item 3

Transport for London

Minutes of the Programmes and Investment Committee

Conference Rooms 1 and 2, Ground Floor, Palestra,
197 Blackfriars Road, London, SE1 8NJ
10:00am, Wednesday 17 May 2023

Members

Ben Story (Chair)
Dr Nelson Ogunshakin OBE
Seb Dance
Peter Strachan

Government Special Representative

Becky Wood (via Teams)

Executive Committee

Andy Lord Interim Commissioner
Stuart Harvey Chief Capital Officer

Staff

Ian Burnham Programme Delivery Manager, Northern Line Extension
Andrea Clarke Director of Legal
Isabel Coman Director TfL Engineering, Asset Strategy
Michael Cooper Director, Project Management Office
Adam Edwards Lead Sponsor, Stations and Structures, Investment Delivery Planning (IDP) - Surface Major Projects

Jonathan Hanes Lead Sponsor, IDP Appraisal Benefit & Comp. Analysis
Mike Hardaker Director of Capital Delivery, Infrastructure, Chief Capital Officer
Zoe Manzoor Senior Committee Officer, Secretariat
Andrew Meeson Lead Sponsor, IDP, London Underground, Major Projects
Peter McNaught Director of Operational Readiness
Robert Niven Head of IDP Major Projects
Kumaran Nagiah Chief of Staff, Chief Capital Officer
James Norris Head of Project Assurance
David Rowe Director of IDP
Rachel Sherry Finance Director, Capital Finance
Jadon Silva Director of Procurement and Commercial, Capital

Independent Investment Programme Advisory Group (IIPAG)

Alison Munro Chair IIPAG
Simon Collins IIPAG Member

Also in Attendance

Emma Gould Deloitte Board Review Team

18/05/23 Apologies for Absence and Chair's Announcements

Apologies for absence had been received from Dr Lynn Sloman MBE and Councillor Kieron Williams. The meeting was quorate.

The Chair welcomed everyone to the meeting. The meeting was also being broadcast live to TfL's YouTube channel to ensure the public and press could observe the proceedings and decision making¹.

The Chair reminded those present that safety was paramount at TfL and encouraged Members to raise any safety issues during discussions on a relevant item or with the appropriate member of the Executive Committee after the meeting.

This was to be Becky Wood's last meeting, as she was leaving to start a new role outside central Government and stepping down as the Government's Special Representative. On behalf of the Committee, the Chair thanked Becky for her contributions to the meetings of the Committee and noted that her input into discussions with Government had been invaluable, wishing her all the best for the future.

On behalf of the Committee, the Chair passed on condolences to the family of David James FICE, who passed away in March 2023. David was the Chair of the Independent Investment Programme Advisory Group from 2010 to 2016 and a regular attendee of the former Finance and Policy Committee, providing assurance to Members on TfL's Investment Programme.

19/05/23 Declarations of Interests

Members confirmed that their declarations of interests, as published on tfl.gov.uk, were up to date. It was noted that there had been one update since the last meeting. Peter Strachan has been appointed as the Chair of the National Transport Authority, Ireland.

There were no interests declared that related specifically to items on the agenda.

20/05/23 Minutes of the Meeting of the Committee held on 1 March 2023

The minutes of the meeting of the Programmes and Investment Committee held on 1 March 2023 were approved as a correct record and the Chair was authorised to sign them.

21/05/23 Matters Arising and Actions List

Andrea Clarke introduced the paper, which set out progress against actions agreed at previous meetings of the Committee.

The Committee noted the updated actions list.

¹ TfL apologises but due to a technical issue only part of this meeting was recorded and broadcast on Teams. The minutes cover all issues discussed and the outcomes.

22/05/23 Use of Delegated Authority

Andrea Clarke introduced the item. Since the last meeting of the Committee on 1 March 2023 there had been no use of authority delegated by the Board nor use of Chair's Action. There were also no approvals to report in relation to authority exercised by the Commissioner or Chief Finance Officer nor any Mayoral Directions to TfL within the remit of the Committee.

The Committee noted the paper.

23/05/23 Investment Programme Report – Quarter 4: 2022/23 Summary

Stuart Harvey and David Rowe presented the summary report for the Quarter 4 2022/23 period and the related exempt supplementary information on Part 2 of the agenda, which provided an update on the progress of specific achievements ahead of the full quarterly report to the meeting of the Committee in July 2023.

Good progress continued to be made with the Four Line Modernisation programme. Following the successful commissioning of the signalling section between Stepney Green to Becontree, signalling migration area (SMA) 6, the signalling section between Dagenham East and Upminster, SMA7, went live on 19 March 2023. This was a significant achievement for the programme. It meant that two of the four sub-surfaces lines (and around 57 per cent of the Tube network in total) was now operated by an automatic signalling system. TfL was now turning its focus to undertaking software development for future SMAs covering the Metropolitan line north of Finchley Road. A full costing review was being undertaken and would be reported to the Committee in July 2023.

On Silvertown Tunnel, work was underway to commence the tunnelling of the second bore. There would be a further update to the Committee in July 2023.

The new street-level entrance to Bank station on Cannon Street was officially opened by the Mayor on 27 February 2023, providing a range of benefits. This completed the project, which was delivered in line with costs.

The update on the DLR replacement programme was also noted. The work on the main Beckton depot and network infrastructure was progressing well. A total of 54 new state-of-the-art trains would be provided. The testing of trains had commenced, and the programme remains ahead of schedule. TfL had received confirmation from the Government activating an option to purchase 11 additional trains that were to be funded through the Housing Infrastructure Fund.

Good progress also continued to be made with delivering the Piccadilly Line Upgrade including several key developments in relation to rolling stock and the depot and stabling work. Officers continued to work through the issues with the operator on the misalignment between the depot's migration plan and the train introduction strategy to mitigate this issue. A further update would be provided in July 2023.

David Rowe provided an update regarding London Underground. TfL had continued to make good progress with meeting milestones, particularly with the drive to reduce the carbon impact of programmes. The key successes in Quarter 4 were noted, including the successful delivery of LED lighting on Bakerloo line trains. Work was also underway to improve the accessibility of these trains. All planned station works, including the provision of humps and manual ramps was now complete, with the full fleet of 36 trains due for completion by August 2025.

Other key achievements highlighted included: installation of the new roof at Plaistow station earlier than scheduled with a saving, improved communication systems at King's Cross St Pancras station and two new escalator refurbishments at Jubilee line stations.

An additional 10 kilometres of bus lane would be delivered this year. TfL was making good progress with meeting the target of delivering 25 kilometres of bus lane by 2025.

An update on the work to refurbish Kentish Town station was also noted. Following discussions with stakeholders on a range of alternatives, TfL had decided that the most efficient way to complete the works would require a temporary station closure. TfL would use this opportunity to provide a range of enhancements to the station. Members welcomed these improvements.

TfL had secured further funding from third parties to improve step-free access at Hounslow West station and King's Cross St Pancras station, on the south side of Euston Road. Construction was well underway on the Holloway Road junction works and works had been completed on the York Road roundabout in Wandsworth.

The Committee welcomed the Memorial in honour of London Transport workers who had lost their lives as a result of Covid-19, which was unveiled by the Mayor on 26 April 2023.

TfL had recently awarded a contract to Zest to provide and operate rapid electric vehicle charging bays on public land on strategic roads. Discussions were ongoing with the taxi and private hire team to identify suitable locations that would encourage the transition to electric vehicles from this key trade.

The Project Assurance team would continue to work closely with teams to assist with the delivery of projects.

The Committee discussed the recent announcement to delay the HS2 infrastructure works between Euston and Old Oak Common. The full implications of the operational impacts for TfL were not fully known, but it was anticipated that the decision would have a significant impact on the Euston station development plans and the capacity and frequency of the Elizabeth line would need to be increased to meet the increased pressure at Old Oak Common. TfL was in discussion with the Department for Transport on these matters, as well as the London Borough of Camden, Network Rail and the Greater London Authority. Once more information was available, a briefing would be provided to the Committee on the impact of the decision to delay the construction of the HS2 tunnel between Euston and Old Oak Common. **[Action: David Rowe]**

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

24/05/23 Independent Investment Programme Advisory Group Quarterly Report

James Norris introduced the paper and the related exempt supplementary information on Part 2 of the agenda, setting out the work undertaken by the Independent Investment Programme Advisory Group (IIPAG). The Project Assurance team continued to work closely with IIPAG and project teams to address issues raised.

Alison Munro presented the Appendix summarising IIPAG's activities in February – March 2023. The group had undertaken one programme review for Surface Assets. IIPAG was beginning two new reviews, on the delivery of renewals and on the effectiveness of the Project Pathway Gate process. IIPAG had submitted its work programme to the Audit and Assurance Committee, including a review on the impact of carbon changes on TfL programmes.

The Committee noted the Independent Investment Programme Advisory Group's quarterly report and the exempt supplementary information on Part 2 of the agenda.

25/05/23 TfL Project Assurance Update

James Norris presented the paper and the related exempt supplementary information on Part 2 of the agenda, which provided an update on the project assurance work undertaken between 14 January and 31 March 2023.

The Project Assurance team had undertaken one programme review with the Independent Investment Programme Advisory Group (IIPAG) during the period, and 13 project assurance reviews, with IIPAG involved in six of these. These reviews had resulted in a total of 46 recommendations, of which three were identified as critical issues.

The paper also provided an overview of the status of IIPAG and Project Assurance recommendations. There continued to be a concerted effort to address these and this remained a priority for teams, with 17 recommendations closed during the period. The Project Assurance team continued to work closely with teams to assist them to address the matters raised by the reviews and close out overdue recommendations. The Chair congratulated staff on these results and requested that emphasis should continue to be placed on closing recommendations to keep them to a minimum.

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

26/05/23 Surface Asset Renewals Programme

David Rowe presented the paper, seeking funding for the continuation of the Surface Asset Renewals Programme for the full delivery planned in 2023/24 and a proportion of the spend through to the end of 2025/26.

The paper set out the proposed priorities for the programme in view of funding constraints, based on the priorities set out in TfL Asset Management Renewal Strategy.

While the level of investment planned for asset renewals had increased since the coronavirus pandemic, it remained significantly below that required to remove the backlog of renewals and maintain service levels. As a result, it had been necessary to defer several major renewals schemes that were not covered by the current investment profile. TfL would continue to work with the Department for Transport (DfT) to seek the additional funding required for major renewals including opportunities through the Major Road Network Programme. This could significantly help with the costs of major projects

The paper set out details of TfL's approach to delivering the programme, including the proposed continuation of the work bank scheme, to allow priority works to be brought forward, should funding become available.

TfL actively worked to deliver renewables, such as green roofs and solar panels that improved its environmental performance. An example of this is the redevelopment of Kingston Cromwell Road bus station.

TfL also proactively worked to identify and provide healthy streets solutions when carrying out the Surface Assets Programme as the two programmes were closely linked.

Safety was paramount at TfL and the paper set out measures to address maintenance and safety issues.

Costs benefits assessments had been undertaken in identifying priorities and would continue to be reviewed. A list of the actual and proposed outputs were set out in the Appendix to the report.

The Committee discussed the funding arrangements with the DfT, given the absence of any government grant for asset renewals. TfL was in a different funding position from the rest of the country and in a constrained situation. TfL had worked to secure a longer-term funding agreement from the Government. It was recognised that TfL was unable to fund major capital renewals but it, along with the London boroughs could submit bids for funding under the national road network programme. TfL was also engaging with the DfT about the provision of separate funding for road infrastructure outside of the national road network scheme. At present, TfL was working to secure an agreement for 2024/25 but wished to secure a longer-term capital agreement. Officers were due to meet with the Government in July 2023 about this. The Chair suggested that in raising this with the Government, it may be helpful to provide evidence of the benefits to the economy of providing the works and also how it would remove potential barriers to growth, since this was high on the Government's agenda.

TfL continued to provide support to the London boroughs, such as with annual road surveys, and with the delivery of interim measures, such as the works to strengthen bridges, subject to the budget constraints.

Simon Collins reported on the Independent Investment Programme Advisory Group's review of the programme. It considered the programme to be well managed but under increasing pressure due to generally deteriorating asset conditions arising from the ongoing funding situation, as evidenced by the increase in interim measures. It recommended that consideration be given to carrying out a review of the Operations team to increase staff skills sets to manage these issues. The impact of interim measures should also be further explored.

The Surface Assets Renewals Programme will return annually to the Committee for authority approval.

The Committee noted the paper and:

- 1 approved increased Programme and Project Authority of £109m, which would apply through to the end of 2025/26 increasing the total Programme and Project Authority to £603m; and**
- 2 noted that Procurement Authority in respect of the various elements of the Surface Transport Assets Programme would be sought at officer level in accordance with Standing Orders.**

27/05/23 Programmes and Investment Committee Programme Structure

David Rowe presented the paper, setting out proposed changes to the structure of programmes within the remit of the Committee.

It was proposed that the new structure would comprise the following seven programmes (reduced from 16): a Network Development and Third-Party Pipeline Programme, Technology Programme, London Underground Renewals Programme, Streets, Bus and Rail and Sponsored Service Renewals Programme, Rail and Station Enhancements Programme, Safe and Healthy Streets Programme and an Environment Programme.

These proposals would be kept under review. Items may be moved between programmes should the need arise.

The main changes would simplify and reduce the number of programmes and better reflect TfL's new operating model and current work. It would allow teams and the Committee to have greater visibility across the programmes and flexibility to respond to developments and prioritise investments. Work was ongoing to make the necessary adaptations to internal structures to reflect the programme. This included the Committee's work programme being updated to reflect the new programmes.

The Committee noted the breadth of some of the programmes. It felt it was important that the Committee should continue to look at items from a sub-programme perspective. Members discussed the proposal to place bus investment into several different programmes and wished to retain oversight of services to ensure they were joined up where necessary. The Chair of IIPAG Alison Munro stated that, given the size of the programmes, officers should continue to work to ensure that the presentation of reports to the Committee were as clear and accessible as possible, with increased focus on prioritisation at the sub-programmes level. Officers agreed and would also provide details of the read across to other relevant programmes. Papers would also include information on the proposed outcomes and on performance against the targets. The Chair of the Committee welcomed the inclusion of such breakdowns in reports.

Alison Munro also suggested that further consideration should be given to the development of new key performance indicators to align with the new approach.

The Committee noted the paper and:

- 1 approved the proposed changes to the Programmes within the remit of the Programmes and Investment Committee; and**
- 2 approved revised Programme and Project Authority for each Programme, as set out in Appendix 1 of the paper, in place of any previous Programme and Project Authority for the same subject matter.**

28/05/23 Lessons Learnt from Recently Completed Projects

Stuart Harvey, Ian Burnham and Andrew Meeson presented the paper, and the exempt supplementary information on Part 2 of the agenda, which provided an update on how lessons learnt have been applied from a number of recently completed major projects. The paper addressed an action from the meeting held in October 2022.

Despite a challenging backdrop, TfL had successfully completed several major projects within the last 18 months. These included: the Northern Line Extension, which opened in September 2021; the Barking Riverside Extension, which opened in July 2022; and the Bank Station Capacity Upgrade, which was completed in February 2023. The lessons learnt from those projects were currently being applied and were reflected in a project at Surrey Quays London Overground station.

These projects demonstrated the importance of collaboration between stakeholders among other matters. TfL had put in place arrangements to record lessons learnt and was working to ensure they were being imbedded into projects. A further update on how TfL were embedding the lessons learnt from major projects would be provided to the Committee at an appropriate time. **[Action: Stuart Harvey]**

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

29/05/23 Members' Suggestions for Future Discussion Items

Andrea Clarke introduced the current forward plan for the Committee. The requests for further items would be added to the plan.

The Committee noted the forward plan.

30/05/23 Any Other Business the Chair Considers Urgent

There was no other urgent business to discuss.

31/05/23 Date of Next Meeting

The next scheduled meeting of the Committee would be held on Wednesday 19 July 2023 at 10:00am.

32/05/23 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: Investment Programme Report - Quarter 4: 2022/23 Summary; Independent Investment Programme Advisory Group Quarterly Report; TfL Project Assurance Update; and Lessons Learnt from Recently Completed Projects.

The meeting closed at 12.30pm.

Chair: _____

Date: _____

[page left intentionally blank]

Programmes and Investment Committee



Date: 19 July 2023

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 Programmes and Investment Committee.

Contact Officer: Howard Carter, General Counsel
Email: HowardCarter@tfl.gov.uk

[page left intentionally blank]

Programmes and Investment Committee Action List (To be reported to the meeting on 19 July 2023)

Actions from the meeting held on 17 May 2023

Minute No.	Description	Action By	Target Date	Status note
23/05/23	<p>Investment Programme Report - Quarter 4: 2022/23 Summary</p> <p>A briefing would be provided to the Committee on the impact of the decision to delay the construction of the HS2 tunnel between Euston and Old Oak Common.</p>	David Rowe	October 2023	On the forward plan for the meeting on 5 October 2023.
28/05/23	<p>Lessons Learnt from Recently Completed Projects</p> <p>A further update on how TfL were embedding the lessons learnt from major projects would be provided to the Committee at an appropriate time.</p>	Stuart Harvey/ Michael Cooper	December 2023	On the forward plan for the meeting on 6 December 2023.

Actions from previous meetings

Minute No.	Description	Action By	Target Date	Status note
06/03/23 (1)	<p>Investment Programme Report – Quarter 3, 2022/23: Four Lines Modernisation (4LM)</p> <p>The team is carrying out a full 4LM programme review, which would be reported to the Committee in July 2023.</p>	Stuart Harvey	July 2023	Completed. A paper is on the agenda for this meeting.
06/03/23 (2)	<p>Investment Programme Report - Quarter 3 2022/23: Piccadilly Line Upgrade</p> <p>A further update would be reported in Quarter 4.</p>	Stuart Harvey	October 2023	On the forward plan for the meeting on 5 October 2023.

[page left intentionally blank]

Programmes and Investment Committee



Date: 19 July 2023

Title: Use of Delegated Authority

This paper will be considered in public

1 Summary

- 1.1 This is a standing item on the agenda to inform the Committee of any use of delegated authority by the Committee, through Chair's Action, or of Procurement Authority and Programme and Project Authority (in respect of matters within the Committee's remit) granted by the Commissioner and the Chief Finance Officer in accordance with delegated authorities under TfL's Standing Orders since the last meeting of the Committee. The paper also provides information on Mayoral Directions to TfL within the Committee's remit.
- 1.2 Since the last meeting of the Committee, on 17 May 2023, there has been:
- (a) no use of specific authority delegated by the Board;
 - (b) no use of Chair's Action;
 - (c) no approvals of Programme and Project Authority by the Commissioner nor by the Chief Finance Officer;
 - (d) one approval of Procurement Authority by the Commissioner, in relation to the A40 Westway Structures Refurbishment; and
 - (e) no Mayoral Directions within the Committee's remit.
- 1.3 A similar report is submitted to the Finance Committee and the Land and Property Committee in respect of the use of Chair's Action and of Authorities granted by the Commissioner and the Chief Finance Officer and of relevant Mayoral Directions that fall within the remit of those Committees.

2 Recommendation

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

3 Use of authority delegated by the Board

- 3.1 There has been no use of authority delegated by the Board since the last meeting of the Committee.

4 Use of Chair's Action

- 4.1 Under Standing Order 113, in situations of urgency, the Board delegates to each of the Chair and the Chairs of any Committee or Panel the exercise of any functions of TfL on its behalf, including the appointment of Members to Committees and Panels. Any use of Chair's Action is reported to the next ordinary meeting.
- 4.2 There has been no use of Chair's Action since the last meeting of the Committee:

5 Programme and Project Authority Approvals

- 5.1 To enable an appropriate level of governance, processes are in place for the authorisation, control and reporting of projects.
- 5.2 Programme and Project Authority will normally be granted by the Committee for all programmes and projects as part of the defined Programmes within the overall Investment Programme. Where individual programmes or projects have a value in excess of £50m and have not already received full approval as part of a Programme, requests will be submitted to the Committee for consideration. Those programmes and projects with an estimated final cost of £50m or below, which have been approved by the Commissioner or the Chief Finance Officer, will be reported to subsequent meetings of the Committee.
- 5.3 Where the main contract has not yet been awarded, the Financial Authority and Estimated Final Cost may not be stated because they are commercially confidential.

Approvals by the Commissioner and Chief Finance Officer

- 5.4 Since the last meeting of the Committee, neither the Commissioner nor the Chief Finance Officer has approved any Programme and Project Authority requests within the Committee's remit.

6 Procurement Approvals

Approvals by the Commissioner and Chief Finance Officer

- 6.1 Since the last meeting of the Committee, there has been one Procurement Authority request approved by the Commissioner within the Committee's remit. This relates to the A40 Westway Structures Refurbishment, at the value of £43.1m.

7 Mayoral Directions to TfL

- 7.1 The Greater London Authority (GLA) Act 1999 (as amended) permits the Mayor to issue to TfL general directions as to the manner in which TfL is to exercise its functions or specific directions as to the exercise of its functions (or not to exercise a power specified in the direction). Directions are also often made in relation to the implementation of matters in respect of which the Mayor delegates statutory powers to TfL.

- 7.2 The Mayor makes Mayoral Directions through Mayoral Decisions. Papers for Mayoral Directions set out the financial and other implications. If those implications change over time, that will be reported to the GLA.
- 7.3 All Mayoral Decisions are issued in writing, with the information that is not exempt from publication included on the GLA's Decisions Database on its website: <https://www.london.gov.uk/about-us/governance-and-spending/good-governance/decisions?order=DESC>.
- 7.4 Mayoral Directions fall into three broad categories: those addressing technical issues relating to statutory powers; those related to commercial development activities; and those related to projects and programmes. Mayoral Directions relating to TfL are reported to the Board's Committees for discussion as soon as possible after they are received by TfL or published. Regular reports will list the relevant Directions for as long as they are applicable.
- 7.5 Annually the Audit and Assurance Committee considers the list as part of its consideration of the annual audit plan to ensure that appropriate audit resource is applied to assurance on TfL's work in implementing Mayoral Directions. This will also be kept under review at each quarterly meeting of that Committee.
- 7.6 A summary of current Mayoral Directions to TfL is maintained on the [How we are governed](#) page on our website, with links to the relevant Mayoral Decisions. That page will be updated as and when further Directions are made.
- 7.7 Mayoral Directions to TfL related to projects and programmes are reported to this Committee. There have been no Mayoral Directions to TfL within the Committee's remit since the last meeting.

List of appendices to this report:

None

List of Background Papers:

None

Contact Officer: Howard Carter, General Counsel
Email: HowardCarter@TfL.gov.uk

[page left intentionally blank]

Programmes and Investment Committee



Date: 19 July 2023

Item: Investment Programme Report Quarter 4: Periods 10, 11, 12 and 13, 2022/23

This paper will be considered in public

1 Summary

1.1 The Investment Programme Report describes the progress and performance in Quarter 4, 2022/23 of a range of projects that will deliver world-class transport services to London.

1.2 A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt 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 exempt supplementary information on Part 2 of the agenda.

List of appendices to this report:

Appendix 1: Investment Programme Report Quarter 4 2022/23

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

List of Background Papers:

None

Contact Officers: Alex Williams, Chief Customer and Strategy Officer
Email: AlexWilliams@tfl.gov.uk

Contact Officers: Glynn Barton, Interim Chief Operating Officer
Email: GlynnBarton@tfl.gov.uk

Contact Officers: Stuart Harvey, Chief Capital Officer
Email: StuartHarvey@tfl.gov.uk

[page left intentionally blank]

Investment programme report

Quarter 4 2022/23
(11 December 2022 to 31 March 2023)

Appendix I

Contents

3 Introduction

- 4 Purpose and scope
 - 5 Investment programme delivery structure
-

6 Our performance

- 7 Safety performance
 - 9 Schedule performance
 - 10 Strategic milestones
 - 12 Milestones forecast to be late
-

13 Major projects

- 14 Elizabeth line – Rolling stock
 - 15 Crossrail
 - 16 Four Lines Modernisation
 - 18 DLR rolling stock and systems integration
 - 20 Piccadilly line upgrade
 - 22 Silvertown Tunnel
 - 24 Barking Riverside Extension
 - 25 Bank station capacity upgrade
 - 26 Elephant & Castle
 - 28 High Speed 2
 - 30 Railway systems enhancements
-

31 London Underground

- 32 Train systems
 - 36 Infrastructure renewals
 - 40 Enhancements
 - 44 Technology
-

45 Surface transport

- 46 Healthy Streets
 - 50 Air quality
 - 54 Asset investment
 - 57 Public transport
 - 62 Technology
-

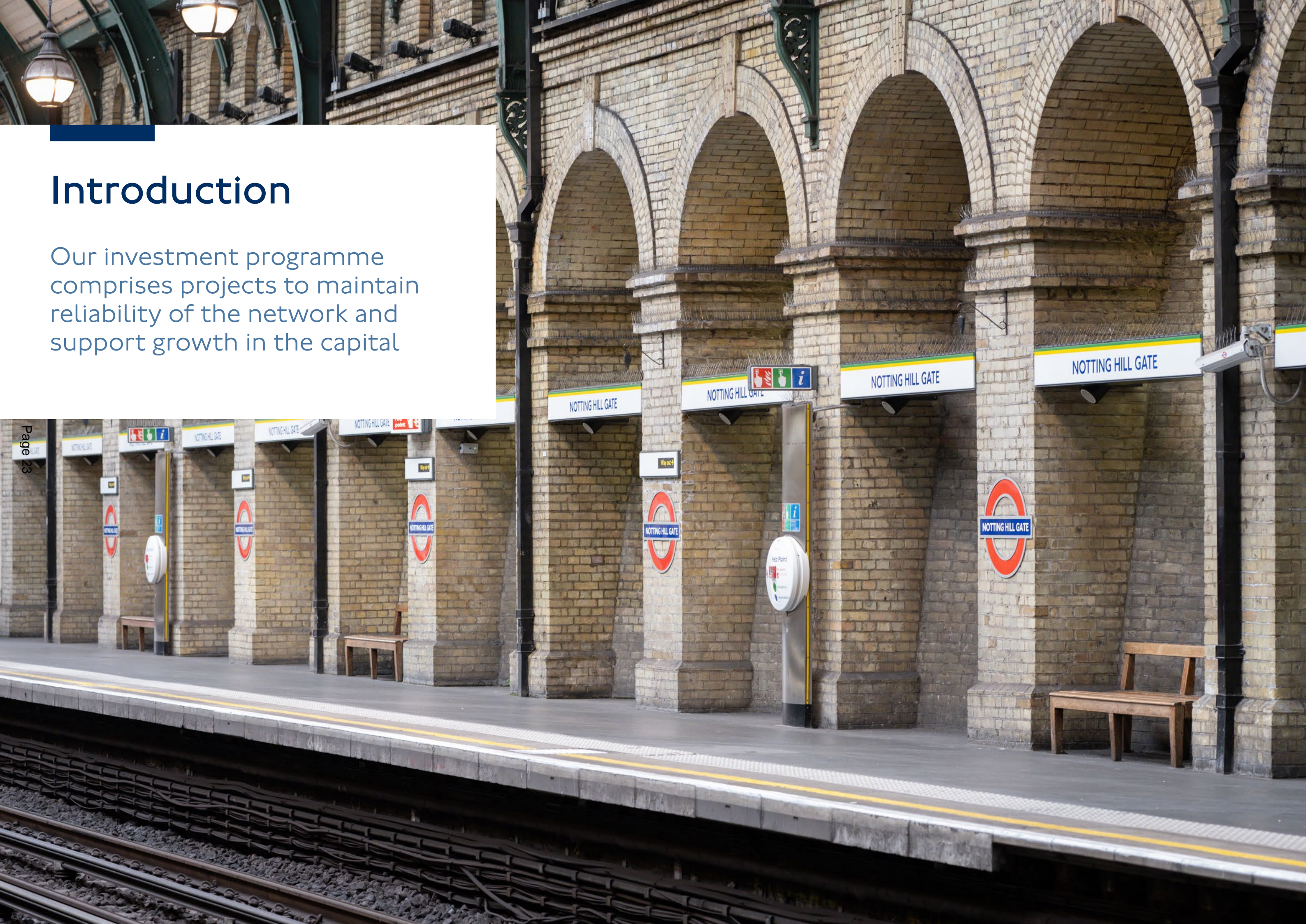
65 Professional services

- 66 Technology and data
 - 70 Growth Fund
-

71 Appendix: Our safety performance data

Introduction

Our investment programme comprises projects to maintain reliability of the network and support growth in the capital



Purpose and scope

Purpose

Transport for London (TfL) is part of the Greater London Authority (GLA) family led by Mayor Sadiq Khan. We are the integrated transport authority responsible for delivering the Mayor's aims for transport.

We run most of London's public transport services, including London Underground, London Buses, the DLR, London Overground, TfL Rail, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and the IFS Cloud Cable Car. The quality and accessibility of these services is fundamental to Londoners' quality of life. By improving and expanding transport, we can make people's lives easier and increase the appeal of sustainable travel.

We are moving ahead with many of London's most significant infrastructure projects, using transport to unlock growth. Supporting the delivery of high-density, mixed-use developments that are planned around active and sustainable travel will ensure that London's growth is good growth. We also use our own land to provide thousands of new affordable homes and our supply chain creates tens of thousands of jobs and apprenticeships across the country.

Scope

The report gives a progress update on the programmes and major projects that seek authority each year to the Programmes and Investment Committee. It includes programmes comprising renewals and enhancements to maintain reliability and support growth. Renewing and replacing our assets is our required baseline to maintain our current performance in terms of safety, reliability, capacity and asset

condition. Additional enhancements can unlock new capacity and enable us to use our existing network more intensively.

This report covers Quarter 4, which runs from 11 December 2022 to 31 March 2023. For each key project or programme, the financial and milestone data represent the position at the end of Quarter 4 and includes commentary on key achievements, progress and challenges. It also updates on notable progress since the last report.

The data displayed differs depending on whether the programme or portfolio has a finite scope to deliver:

- For projects with a finite scope, financial records of spend to date, authority and estimated final cost (EFC) are provided, which represent the entire duration of the programme or portfolio except where stated. For these projects, a completion date is also provided, indicating the year and which quarter the specified event will occur
- For ongoing portfolios that aggregate a number of projects, financial records of spend to date and forecast cost are provided for a discrete period of time

Numbers in brackets represent a deficit in the figure or a decrease since the last report; numbers without brackets represent a surplus in the figure or an increase since the last report. Where financial information is commercially sensitive, it has been redacted. The performance over time graphs illustrate financial performance over the last four quarters. The commentary alongside the graph explains any specific trends or changes to trends over a snapshot in time.



Our renewal and enhancement programmes support London's growth



Our work includes new infrastructure and major upgrade projects

Investment programme delivery structure

Our investment programme is delivered by the following areas of the business: Major projects, London Underground, Surface transport and Professional services. This is reflected in the structure of this report.

Major projects

This area is responsible for our largest and most complex projects. It comprises line upgrades, such as the Piccadilly line upgrade and the Four Lines Modernisation programme, as well as network extensions, major station upgrades, the Elizabeth line and Crossrail.

London Underground

This area covers enhancements, infrastructure renewals, train systems renewals and technology.

Surface transport

This area comprises healthy streets, air quality, public transport and asset investment.

Professional services

Our professional services area comprises technology and data, media and our growth fund.

During Quarter 2 2022/23, on 1 September 2022, we created a new director structure. The changes will see the majority of capital works fall under Capital, the area overseen by the Chief Capital Officer. However, more detailed assessments to determine and implement the structure are ongoing, so for consistency with our reports for the first three quarters of 2022/23 there has been no change to how this report is structured.

Our performance

We measure the safety and milestones progress of our investment programmes schemes



Safety performance

Coronavirus remained the top cause of short-term staff absence and significantly increased as a proportion of total staff absence, from 27 per cent in Quarter 3 to 44 per cent in Quarter 4. Mental health and musculoskeletal-related health remained the top two causes of long-term absence, which is in line with the national average. Our Occupational Health team continues to run events aimed at giving staff the tools to better look after their mental health.

Capital

Capital includes activity under the Chief Capital Officer as well as maintenance activity for which the Chief Operating Officer is responsible. In Quarter 4, our Capital teams worked a combined total of 2.6 million hours, an increase of 600,000 hours from the previous quarter.

Quarterly performance

There was one incident reported under the Reporting of Injuries Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) in Quarter 4, taking the annual total to seven. As a result, the RIDDOR accident frequency rate for the Capital area fell, ending the year at 0.07 injuries per 100,000 hours worked.

During the same period there were five lost time injuries (LTIs) reported, which are injuries that cause an employee to be absent for one or more shifts. Although this represents a reduction on Quarter 3, the frequency rate remains stable due to the relative increase in the number of LTIs reported during the second half of 2022/23.

In total, there were 18 injuries reported during Quarter 4, four more than reported during Quarter 3. However, the long-term trend of workforce injuries in Capital continues to decline year-on-year as we work towards our zero-harm ambitions.

Annual trends

Manual handling incidents (those involving people lifting or carrying loads) were the most common type of injury to members of our workforce during 2022/23, closely followed by slips, trips and falls. Among root causes identified, insufficient task planning, inadequate risk assessments and issues with the working environment were particularly prevalent.



We monitor the health and safety of our workforce



The train control system introduced in Quarter 4 is working reliably

Significant incidents and near misses

In addition to recorded injuries, we also capture and review incidents that could have resulted in harm. This quarter, these incidents have included:

Old Street beam

During a night shift on the Old Street Roundabout project, one of our subcontractors drilled into a structural beam supporting the carriageway. In response, the contractor installed temporary props and surface level barriers to prevent traffic flow in the area. An investigation is in progress which will consider whether this could have been identified and prevented at the design stage.

Four Lines Modernisation

The new train control system was successfully introduced in both signal migration areas 6 and 7 during Quarter 4, which was a significant achievement. System reliability so far has been good.

Unrelated to the commissioning of SMA7, we have identified two software issues which are currently being mitigated through additional operational restrictions. The impact of resolving these issues has been assessed and a plan is now in place to address these prior to implementation of the Finchley Road to Preston Road signalling section (SMA8). We have also informed the Office of Rail and Road and will continue to keep them informed and updated of all developments.

Fencing panels

In East London, several fencing panels between one of our tracks and local residents' gardens became loose, leading to risk of people being able to access the track. We took immediate action, with our Civils team securing the fence.

Asset damage at Beckton Depot

A small steel post and concrete base were installed at a site in the depot to support future assets. The first DLR passenger train to pass this site struck the post, knocking it over. The train operator and shunter reported the strike and all installations within gauge stopped. The team moved the post and base further away from the track. An investigation was carried out and lessons were shared with all duty holders to prevent recurrence.

Schedule performance

We have achieved a number of scheduled milestones throughout the year

Four Lines Modernisation

In March 2023, we completed the signalling system upgrade on the section of the District line between Dagenham Heathway and Upminster.

DLR rolling stock

In April, dynamic testing (20,000km) started on the new DLR rolling stock.

Piccadilly line upgrade

In June, the first car body was built and painted in the TfL livery.

Silvertown Tunnel

In August, we began using the tunnel boring machine to bore in the southbound tunnel.

Barking Riverside

In July, operational service begun between Barking Riverside and Gospel Oak.

Bank station upgrade

In May, we reopened Bank station following a 17-week closure. The new station is now open and operational, and the new passenger concourse for the Northern line is now open for use.

London Underground

In June, seven new escalators were installed and brought into customer use.

In August, we completed the heavy overhaul of the first 15 Metropolitan line trains.

In March, we completed delivery of 1.5km of deep Tube track.

Borough station

In August, we completed the lift renewal and ticket hall enhancement.

Brompton Road

In September, a new Brompton Road entrance opened at Knightsbridge station.

Old Street

In July, the new station entrance at Old Street opened.

Road User Charging scheme

In November, we completed the statutory public consultation on the Road User Charging scheme.

Westminster Bridge

In July, we completed construction of the Hostile Vehicle Mitigation programme at Westminster Bridge.

A40

In July, we successfully completed the major joint replacement on the A40 Westway.

Major Asset Renewals Programme – Brent Cross

In October, we received the consultant's submission of the Options Assessment report for Brent Cross.

Cycle hire

In October, we launched 500 e-bikes for hire as part of the cycle hire modernisation project.

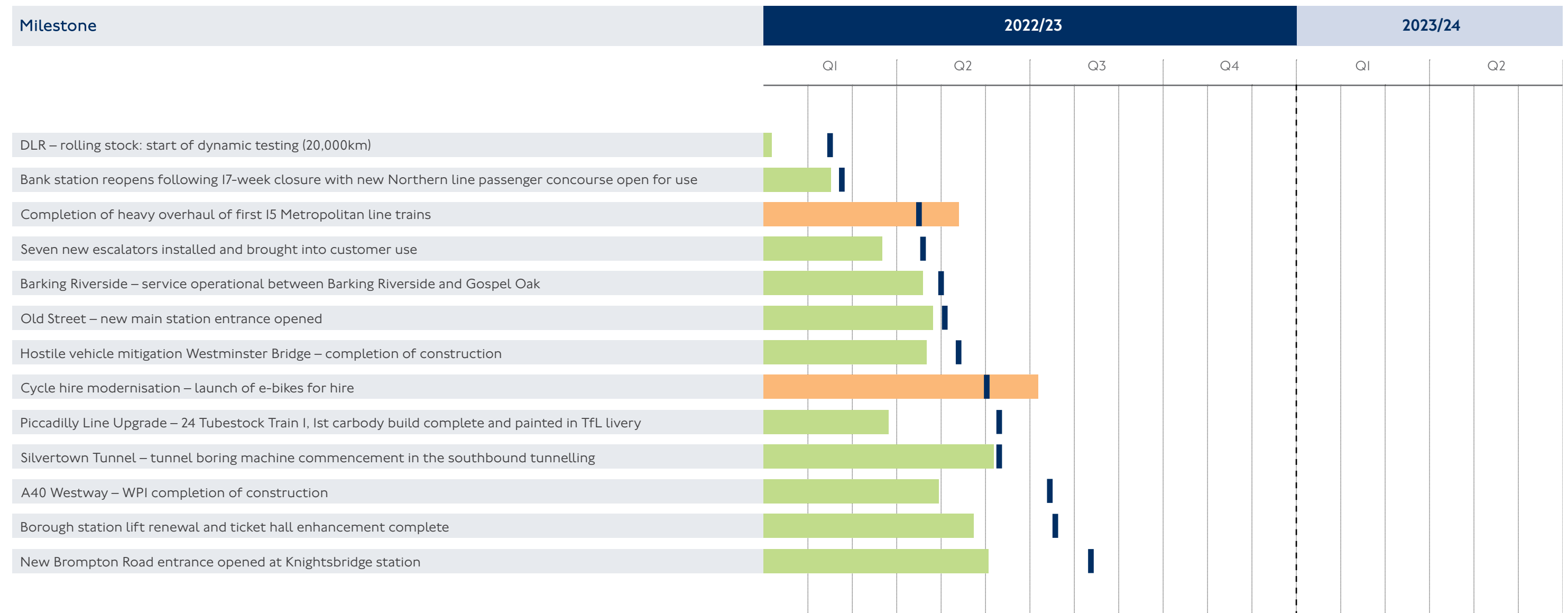


The Barking Riverside extension has enhanced connectivity in east London

Strategic milestones

We have delivered 18 out of 21 strategic milestones either on time or early this year

These are our strategic milestones for 2022/23. The solid blue bar shows when the milestone was due to be met, while the green, amber or red coloured block shows when it was achieved or is forecast to be achieved.



■ Delivered on time or earlier than planned
 ■ Delivered less than 90 days later than planned
 ■ Delivered more than 90 days later than planned
 ■ Planned delivery date
 Reporting period cut off by 31 March 2023

Strategic milestones 2022/23 (continued)



■ Delivered on time or earlier than planned
 ■ Delivered less than 90 days later than planned
 ■ Delivered more than 90 days later than planned
 ■ Planned delivery date
 Reporting period cut off by 31 March 2023

Milestones forecast to be late

DLR rolling stock replacement programme

Beckton Depot – Northern Sidings completed to provide additional train capacity

The works have been delayed due to the late production and submission of the design, and underperforming site activities. These delays were further compounded by having to reschedule the weekend possession from May to July 2023.

Piccadilly line upgrade

All South Harrow siding roads ready for train stabling

All South Harrow siding roads were successfully brought into use on 22 May. The roads were originally scheduled to be brought into use in February but inclement weather impacted ground conditions, delaying the track and civils work and installation of other related assets.

London Underground – Infrastructure renewals – Built environment and civils **Completion of phase one staff welfare improvement works**

The staff welfare improvement project is ongoing, with site works mobilised at several locations. However, a range of issues have affected progress, including poor contractor mobilisation and performance, existing asset condition and discovery of hazardous materials. This has required additional unplanned works and resulted in significant delays to the programme. This means the forecast completion date is late and unrecoverable against the milestone date.

London Underground – Train systems – Passenger fleet

Completion of heavy overhaul of the first 15 Metropolitan line trains

The project delivery timescales were delayed due to the slower than expected ramp up of bogie production. This was in turn due to delays in delivery of materials from suppliers and development and approval of work instructions. The production rate was subsequently improved, with the final train being completed on 12 August, 28 days later than the target date.



We are continuing a major overhaul of our Metropolitan line fleet

Major projects

This portfolio contains our largest and most complex projects. It comprises line upgrades such as the Piccadilly line upgrade, the Four Lines Modernisation programme, network extensions, major station upgrades, the Elizabeth line and Crossrail



Elizabeth line

Rolling stock

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q4 2024/25	1,000	7	1,007	1,149	142
Change since last Investment programme report					
No change	4	(3)	1	No change	

Financial commentary

The movement of £4m in the cost to date since the last report relates to ongoing rolling stock work that will be completed in December 2024.

Performance over time commentary

The forecast end date represents the delivery of the rolling stock and depot, including all additional changes. Since the authority award in 2013/14, our forecast end date has been delayed owing to delays to the overall Crossrail programme. Our authority increased in 2018/19 when five units were added. Since the authority was awarded in 2013/14, the EFC has dropped from £1,090m to £1,007m because the trains have since become part of a sale and leaseback arrangement. They are now being leased from 345 Rail Leasing Limited and the costs charged as operational costs.

Programme update

Class 345 trains

Up to 61 nine-car Class 345 trains continued to operate the Elizabeth line services in Quarter 4 with a peak service of 22 trains per hour in the central section (Paddington

to Whitechapel). On 21 May 2023, a new Elizabeth line timetable was introduced which increased the peak service to 24 trains per hour, using 65 Class 345 trains.

The manufacturers continue to apply incremental updates to the train and signalling system software, and we have provided for this in the rolling stock project forecast through to 2025.

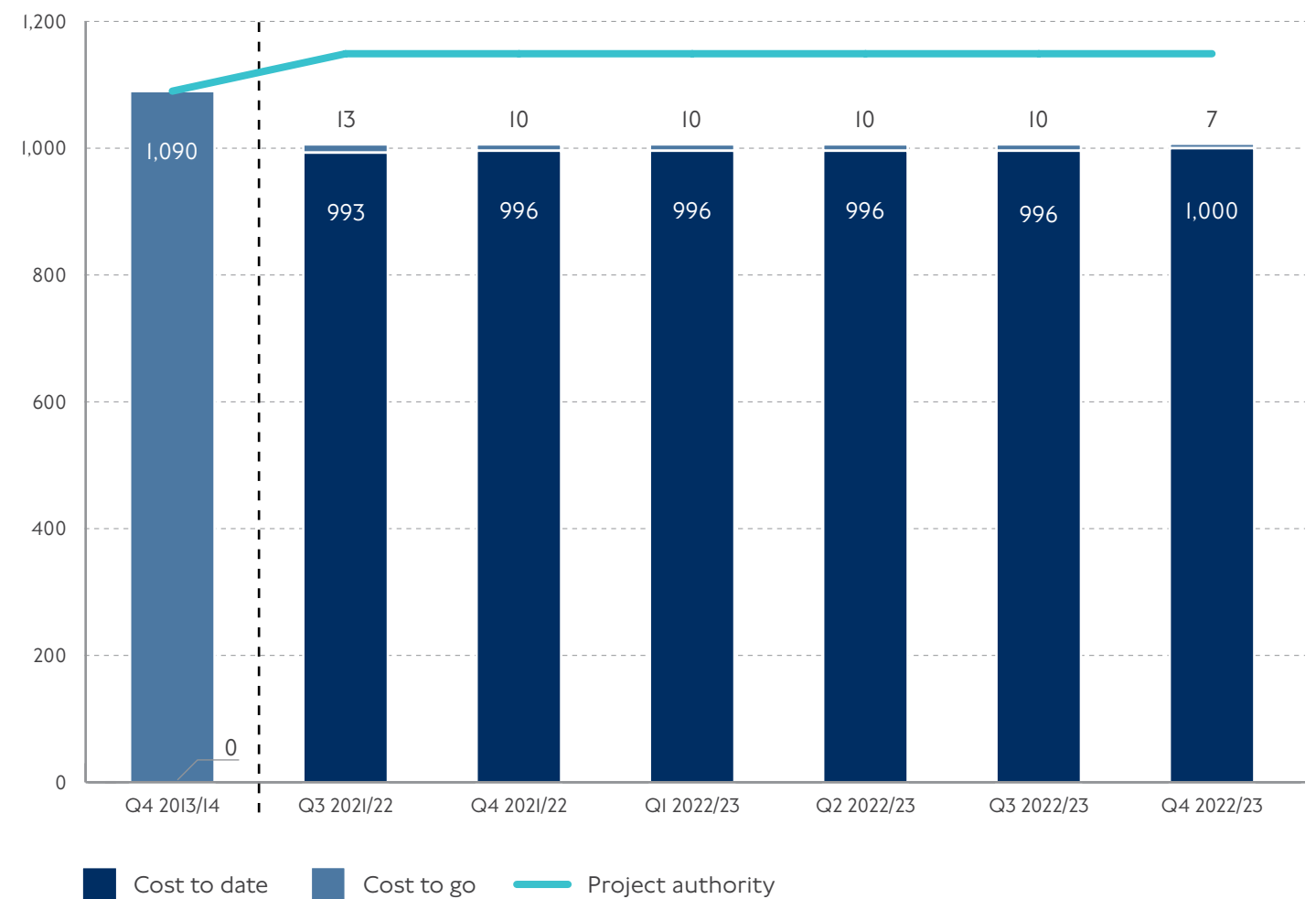
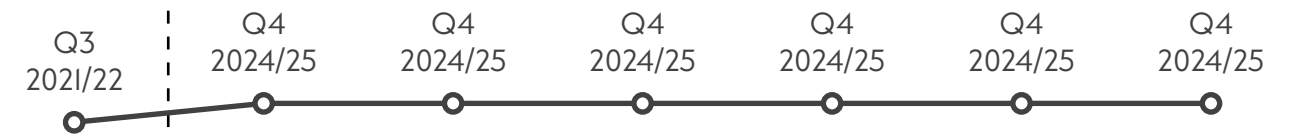
Challenges

Fleet reliability has recovered from the more onerous train duty cycle that was introduced with through-running between the eastern and western and central sections of the Elizabeth line in Quarter 3 (Stage 5b).

Alstom, the train manufacturer, continued to apply modifications to the fleet (hardware and train control software) in Quarter 4 to improve fleet reliability in readiness for the increased duty cycle which came with the introduction of the new timetable on 21 May 2023. Alstom has a continuing modification programme to attain further necessary reliability increases.

Estimated final cost performance over time (£m)

Forecast completion date



Crossrail

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q1 2023/24	15,797	106	15,903	15,888*	(15)
Change since last Investment programme report					
No change	16	(44)	(28)	No change	

Financial commentary

In Quarter 4, the EFC reduced to £15,903m, £28m lower than the Quarter 3 forecast, driven by a detailed review of remaining provisions required for completion. The programme achieved end-to-end integration with Stage 5c, increasing peak service to 24 trains per hour on 21 May 2023, following the recent successful commissioning of ELR400 signalling software and CMS 33.X software in April 2023.

The £106m cost to go represents all works that were required to achieve end-to-end integration and other residual work items required due to safety, reliability or performance improvements.

Crossrail continues to be focused on managing the risks associated with implementing the additional functionality required to complete the final integration of the railway, alongside achieving the required level of operational resilience.

Performance over time commentary

Crossrail opened the Elizabeth line in May 2022 and Bond Street in October 2022. The reported forecast end date represents operation of the full peak timetable. At this point the peak time frequency increased from 22 to 24 trains per hour between Paddington and Whitechapel, with 16 trains per hour off-peak. Direct services from Shenfield to Heathrow Airport also began. Several opportunities and risk retirements have been identified, reducing the programme EFC to £15,903m, a £60m reduction since Quarter 1.

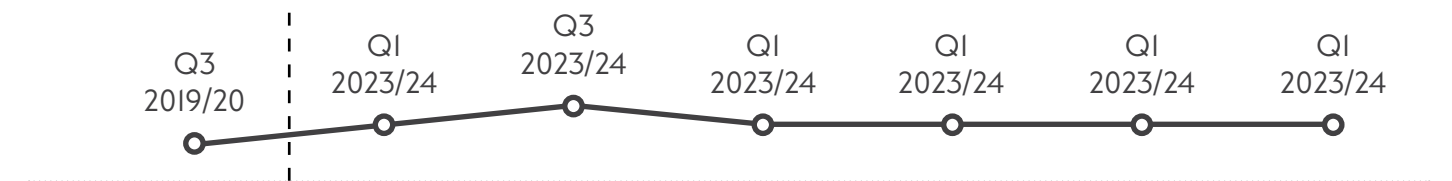
Programme update

The latest Elizabeth line timetable was introduced on Sunday 21 May 2023. This timetable change sees the railway move to a peak service of 24 trains per hour in the central section, an increase from the current 22 trains per hour, and also increases connectivity and reduces journey times. The introduction of this timetable change marked the end of the Crossrail project. The project closed on 26 May 2023, with the team closing out or transitioning activities to TfL and declaring final completion for endorsement by the sponsors.

* Excludes on-network works carried out by Network Rail

Estimated final cost performance over time (£m)

Forecast completion date



Line upgrades

Four Lines Modernisation

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q4 2024/25	5,258	211	5,469	5,520	51
Change since last Investment programme report					
No change	33	(37)	(4)	No change	

Financial commentary

In Quarter 4, the EFC reduced by £4m compared to Quarter 3. This is due to the inclusion of a cost reduction and efficiency target set as part of the budgeting process. The project team are currently undertaking a deep-dive review of the costs and schedule (also accommodating the delivery into service of signal migration areas SMA6 and SMA7). This review will inform the detailed Four Lines Modernisation programme annual review submission to the Programme and Investment Committee in July 2023. Our forecast completion date, for when the final signal migration area I4, between Rayners Lane and Uxbridge, will be brought into service, remained at Quarter 4 2024/25.

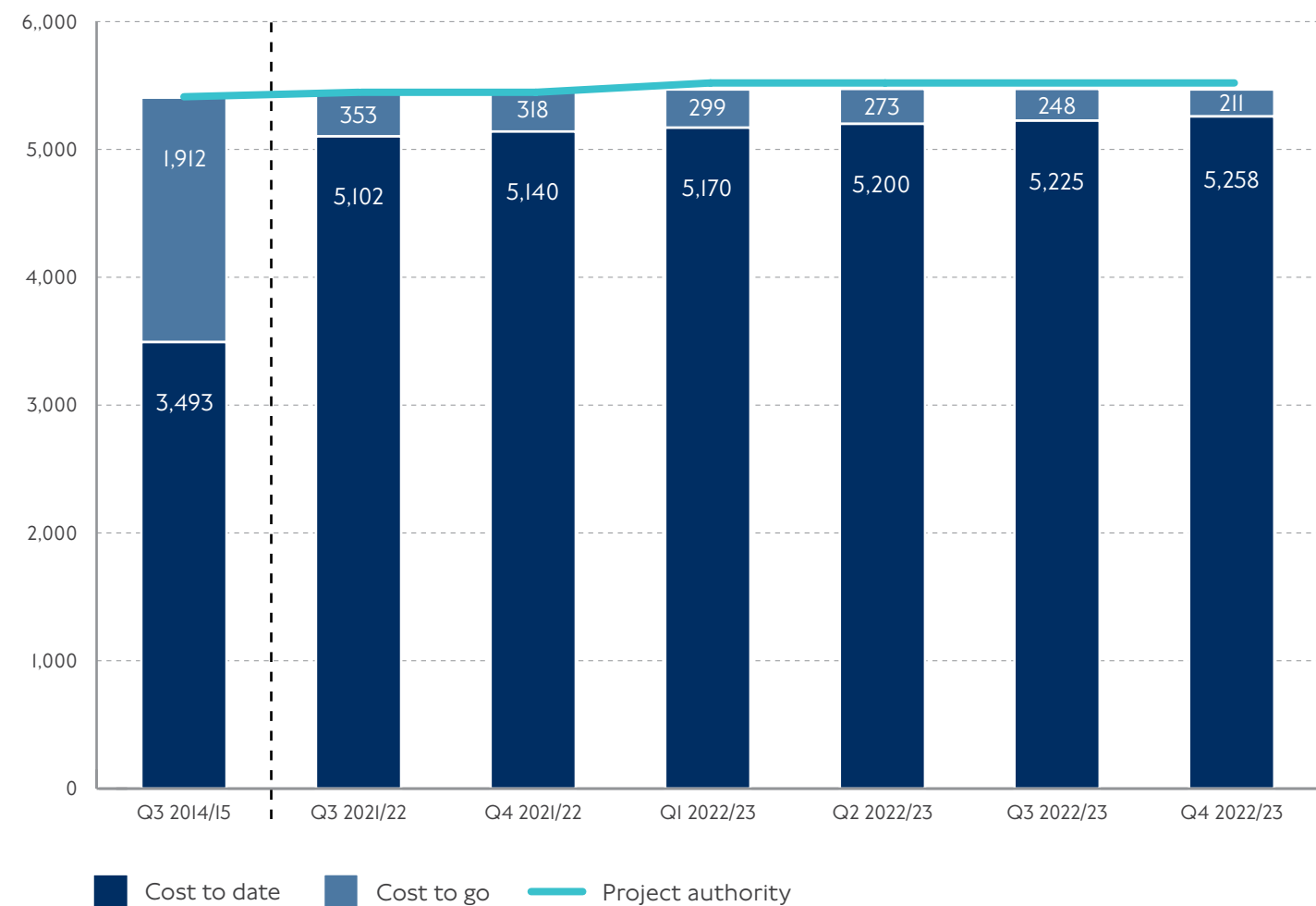
Performance over time commentary

The forecast completion date shows when the final signal migration area I4, between Rayners Lane and Uxbridge, will be brought into service.

Our forecast completion date for signal migration area I4 has been delayed since the signalling contract was awarded in 2015. This is principally owing to challenges with complex software development, testing and commissioning, closure availability and the impact of the coronavirus pandemic.

Estimated final cost performance over time (£m)

Forecast completion date





Over 57 per cent of the Tube network now has automatic signalling

Programme update

We continue to make progress on the programme, which is delivered by progressively installing new signalling on sections of the railway called signal migration areas (SMAs).

Following our successful commissioning of the signalling section between Stepney Green and Becontree (SMA6) on 15 January 2023, the signalling section between Becontree and Upminster Depot (SMA7), went live on 19 March 2023. This is another significant achievement for the programme as it extends the roll-out of the new signalling system on the majority of the District line, completes automatic running on the east of the railway, and connects the first depot to the network.

The area now operating under the new signalling contains 62 stations and four complex junctions, including the full Circle and Hammersmith & City lines. For comparison, the Jubilee line has 27 stations. This means two of the four sub-surface lines (and around 57 per cent of the total Tube network) are now operated by an automatic signalling system.

Unrelated to the commissioning of SMA7, we have identified two significant software issues which are currently being mitigated through additional operational restrictions. The impact of resolving these issues has been assessed and a plan is now in place to address these prior to implementation of the Finchley Road to Preston Road signalling section (SMA8).

Our focus is now moving to software development for future SMAs covering the Metropolitan line north of Finchley Road. Over the Easter weekend (7 to 10 April) we undertook successful testing of the new signalling for SMA8.

Design and installation of trackside signalling assets continues on the Uxbridge (SMA14) and Amersham, Chesham and Watford (SMA13) branches of the Metropolitan line in addition to SMA9 between Preston Road and Moor Park, including Harrow-on-the-Hill. The procurement is in progress for the planned upgrades to the heavy lifting shed at Neasden depot and the new staff accommodation block. When complete in 2024, this facility will enable the planned overhaul of Metropolitan line trains.

Line upgrades

DLR rolling stock and systems integration

(includes Housing Infrastructure Fund)

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q2 2026/27	315	537	852	881	29
Change since last Investment programme report					
No change	66	(71)	(5)	No change	

Financial commentary

Since the last report, the EFC has reduced due to savings achieved by using existing facilities in the depot to assemble the early trains, contributing to reducing the scope of the temporary fit out shed. EFC continues to be below authority due to reducing the scope of the Housing Infrastructure Fund from 14 to 11 trains. We continue to review options to mitigate and offset inflationary pressures where possible.

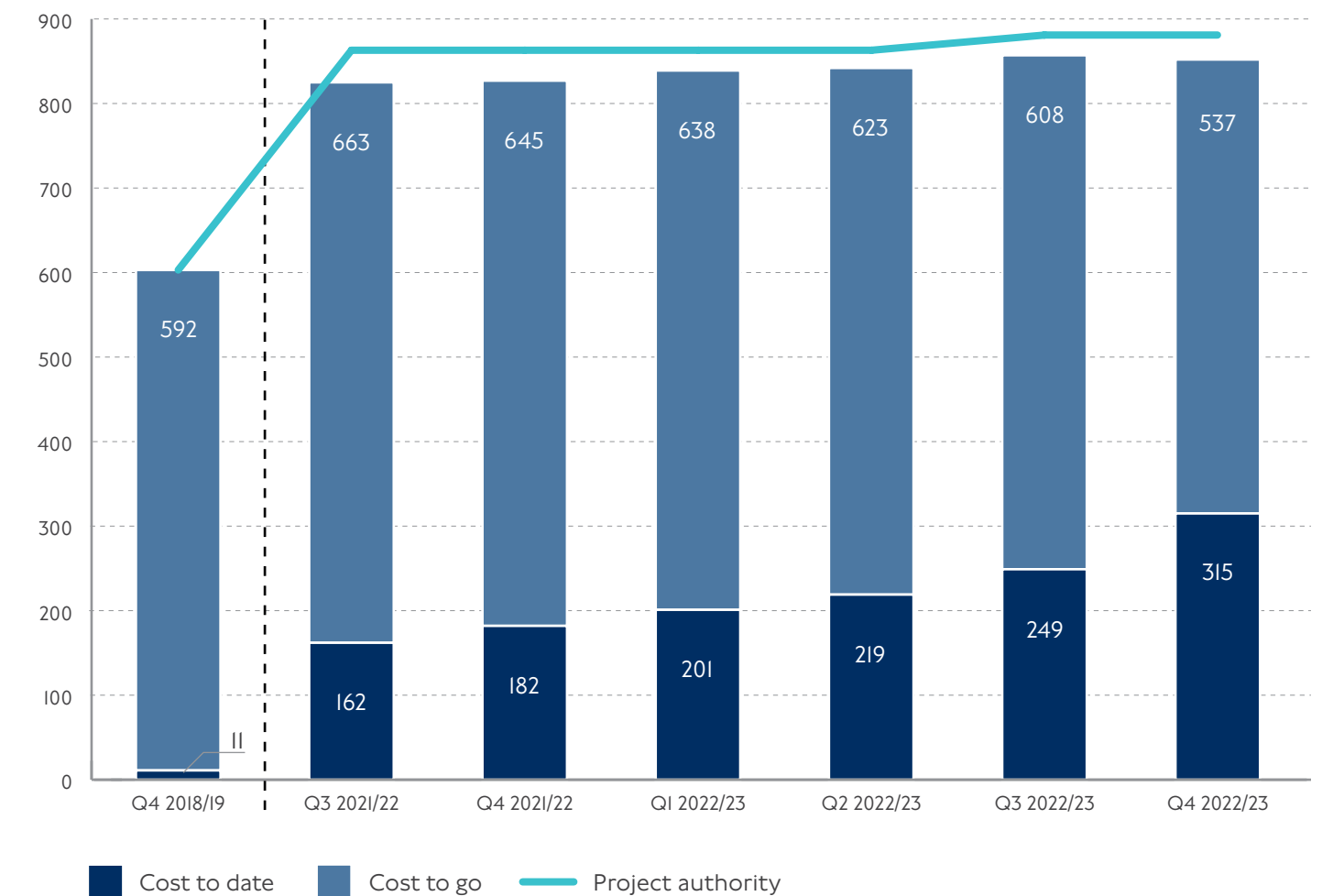
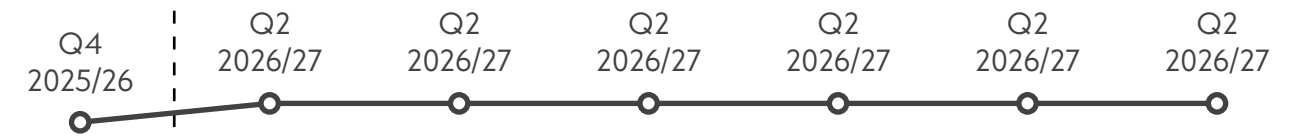
Performance over time commentary

Since the original grant of programme and project authority in 2019, we have received approval from the Government to activate an option to purchase 11 additional trains funded through the Housing Infrastructure Fund. The increase in EFC from Quarter 4 2018/2019 reflects the addition of £261m of grant funding from the Government to deliver the Housing Infrastructure Fund scope of works.

We reduced our EFC to reflect procurement savings and by taking a proactive stance on the remaining risk exposure as the rolling stock design approached completion. However, this is offset by countervailing inflationary pressures during 2022.

Estimated final cost performance over time (£m)

Forecast completion date



Programme update

Rolling stock delivery

The manufacture of the new rolling stock in Spain is continuing to plan with 11 trains completed. The second new rolling stock train was delivered to Beckton depot in early March 2023, while the first train delivered is now undergoing testing on the DLR Network during engineering hours.

We completed signalling testing of the new software on the DLR network with the existing fleet in preparation for the arrival of the new trains in early 2023. Following this, we successfully completed the first stage of signalling integration testing in April with the new train running under automatic signalling control.

Beckton depot and network infrastructure

At Beckton, critical works to complete the northern sidings works are under way with possessions to bring the sidings into use planned for August 2023.

The improvements at Beckton Depot are an integral part of the new DLR train programme. Improved maintenance facilities ensure a continued reliable service for customers.

Following the award of the contract for the maintenance facility building and southern sidings our contractor has now mobilised to site. We have awarded the contract for the design and build for a second entrance at Blackwall station which is essential for unlocking the full fleet roll-out.

These new, state-of-the-art trains will feature a walk-through design, the latest audio and visual live travel information, air conditioning and mobile device charging points. Thirty-three of the new trains will replace some of the oldest rolling stock, which is more than 30 years old and coming to the end of its design life, while 21 additional trains will boost capacity across the DLR network.

Housing Infrastructure Funding

We have received confirmation from the Government to activate an option to purchase 11 additional trains funded through the Housing Infrastructure Fund. This will provide additional capacity and unlock further housing benefits in the Royal Docks and Isle of Dogs. Negotiation for the additional trains is now complete.



We are ahead of schedule with testing of our new DLR rolling stock

Line upgrades

Piccadilly line upgrade

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q4 2026/27	656	2,256	2,912	2,994	82
Change since last Investment programme report					
No change	74	(73)	1	No change	

Financial commentary

Since the last report, our EFC has increased by approximately £1m which is primarily due to continuous assessment of the risks as the programme matures. The EFC is currently £82m lower than the programme and project authority and is under review to assess the cost impact of required changes to our depots' migration plan, which is set out in the following commentary.

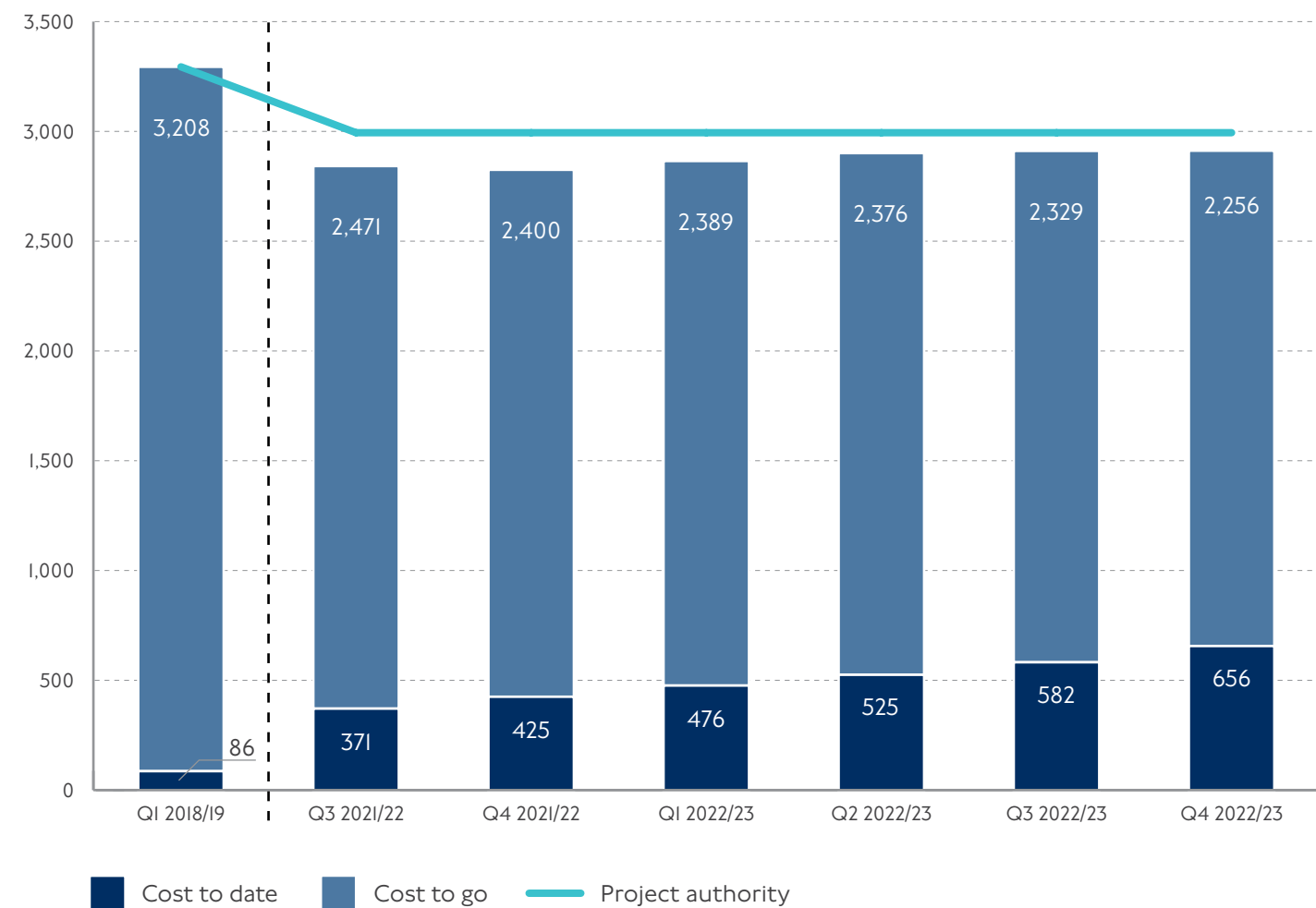
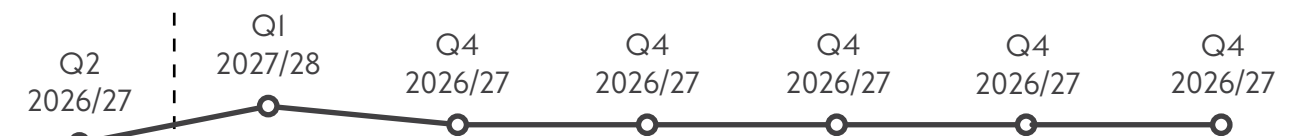
Performance over time commentary

The forecast end date reflects when the new Piccadilly line trains and all supporting infrastructure will be in operational use. Since authority was originally awarded in May 2018, our forecast end date has been delayed from 2026 to 2027.

Since July 2021, industry price increases have led to updated inflation indices within our business, adding around £70m to the overall EFC. This is currently being contained within the overall programme and project authority through an ongoing focus on value management and value engineering opportunities.

Estimated final cost performance over time (£m)

Forecast completion date





Page 1

We are on track to deliver our new Piccadilly line rolling stock

Programme update

Rolling stock

In January 2023, Siemens Mobility completed all works at the test track in Wildenrath in Germany, including installation of third and fourth rail power upgrades and building of a platform for one-person operation. Testing will start on the track to ensure all upgrades are functioning correctly ahead of the first train arriving there for dynamic testing in the summer.

In March 2023, Siemens completed the first-in-type driving motor car body shell. The car body is now ready to enter the painting process. This keeps us on target for the first train to be completed and transferred to the test centre in Wildenrath to start commissioning tests this autumn.

One-person operation CCTV

In February we delivered 22 of 44 power connections in the communication equipment room, a significant step towards enabling train and platform CCTV to be installed. This marks the completion of 50 per cent of planned installations. Once completed, this work will enable the one-person operation and off-train communications equipment to be installed. One-person operation CCTV is a safety-related system that allows the train operator to view passengers along the platform at the interface with the train.

High voltage power upgrade

In March, enabling works started in the Northfields sub-station as part of the high-voltage power upgrade. The upgrade of Northfields sub-station is critical, not just for the future roll-out of the new trains, but also to support the increased power demand because of the ongoing upgrade to Northfields depot.

Depots

Enabling works continue at Northfields and Cockfosters depots to prepare for the start of major upgrades to provide maintenance facilities for the new trains.

As outlined in the last report, the depots' concept designs had to be updated as the original wheel lathe design could not be delivered. The programme delays from this have caused knock-on impacts to the depots' migration plans with these now misaligned to the train introduction dates and migration strategy. The team is continuing to explore ways to mitigate this issue and the resultant schedule and cost impacts.

Green agenda

The project team has set key performance indicators across the programme focusing on reducing carbon, the values of which are reported. Top carbon risks and opportunities are reported in our internal programme performance report. Objectives have been set for all staff to attend carbon-literacy training courses to support the delivery of carbon savings within the programme. Work continues on revising the baseline to reflect a developing understanding of the programme.

Network extensions

Silvertown Tunnel

Forecast completion	Net cost to date (£m)	Net cost to go (£m)	Net EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q1 2025/26	113	64	177	173	(4)
Change since last Investment programme report					
No change	34	(43)	(9)	No change	

Financial commentary

The EFC is currently £4m over the approved programme and project authority of £173m, owing to inflation increases and the agreed Safe Stop undertaken because of the coronavirus pandemic. The EFC reduced by around £9m since the last report due to an overall reduction in risk exposure. We continue to seek opportunities to reduce cost and risk exposure further.

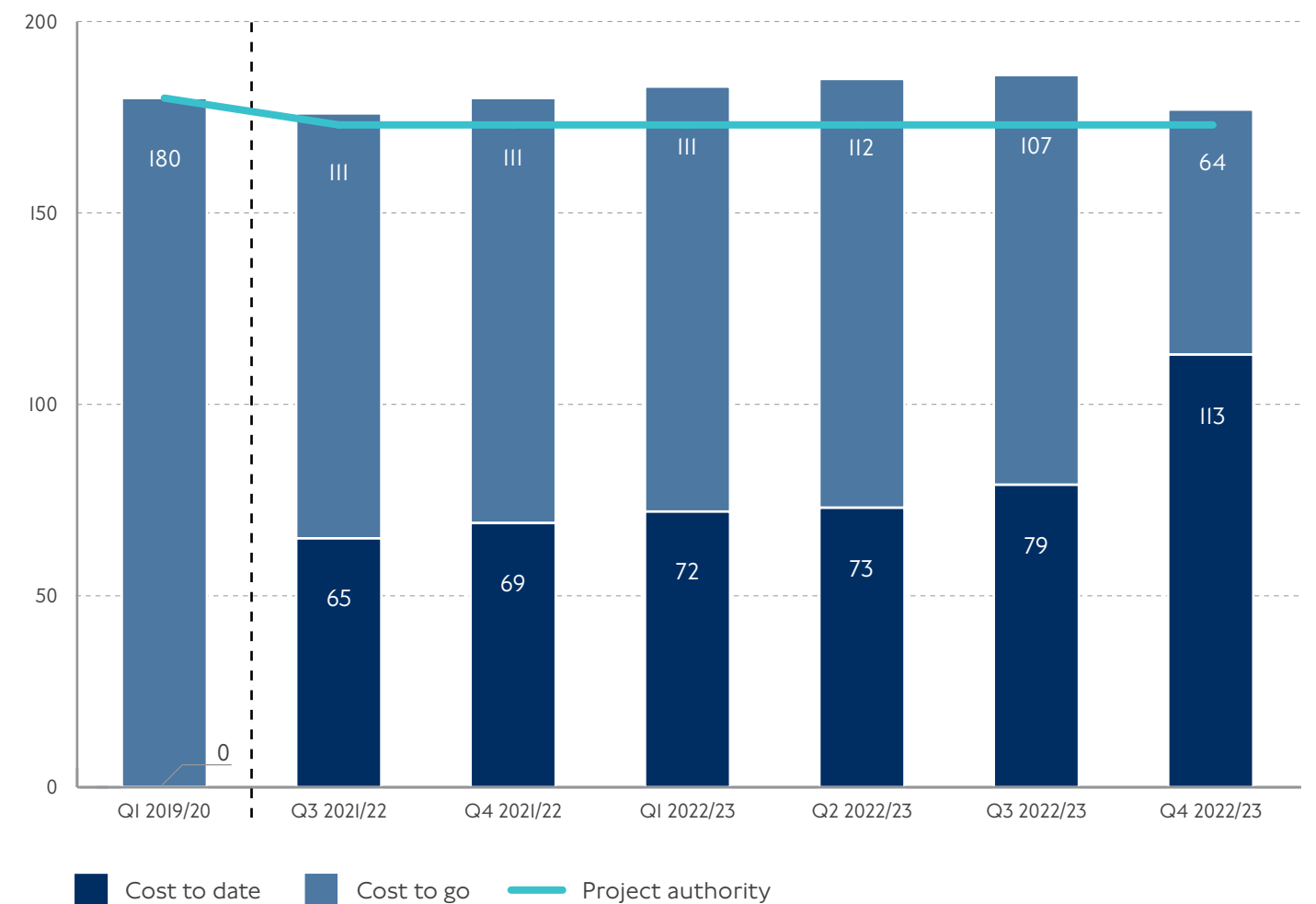
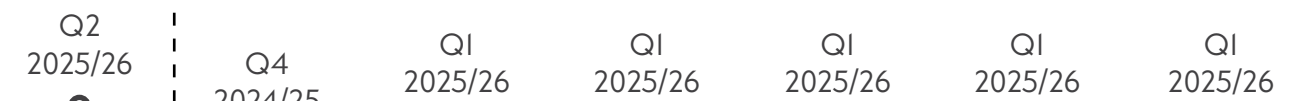
Performance over time commentary

The forecast end date is when the permit from an independent assessor to use the new Silvertown Tunnel is obtained. There has been no change to the forecast end date in the last year.

The EFC reduced in Quarter I 2021/22 after the scope and budget were transferred to the Road User Charging portfolio to achieve synergies with our other Road User Charging schemes; but rose again through 2022 following the impacts of inflationary pressures. As described in the financial commentary, it has reduced in the quarter following risk release.

Estimated final cost performance over time (£m)

Forecast completion date



All numbers are shown as net of income and third-party contributions

Programme update

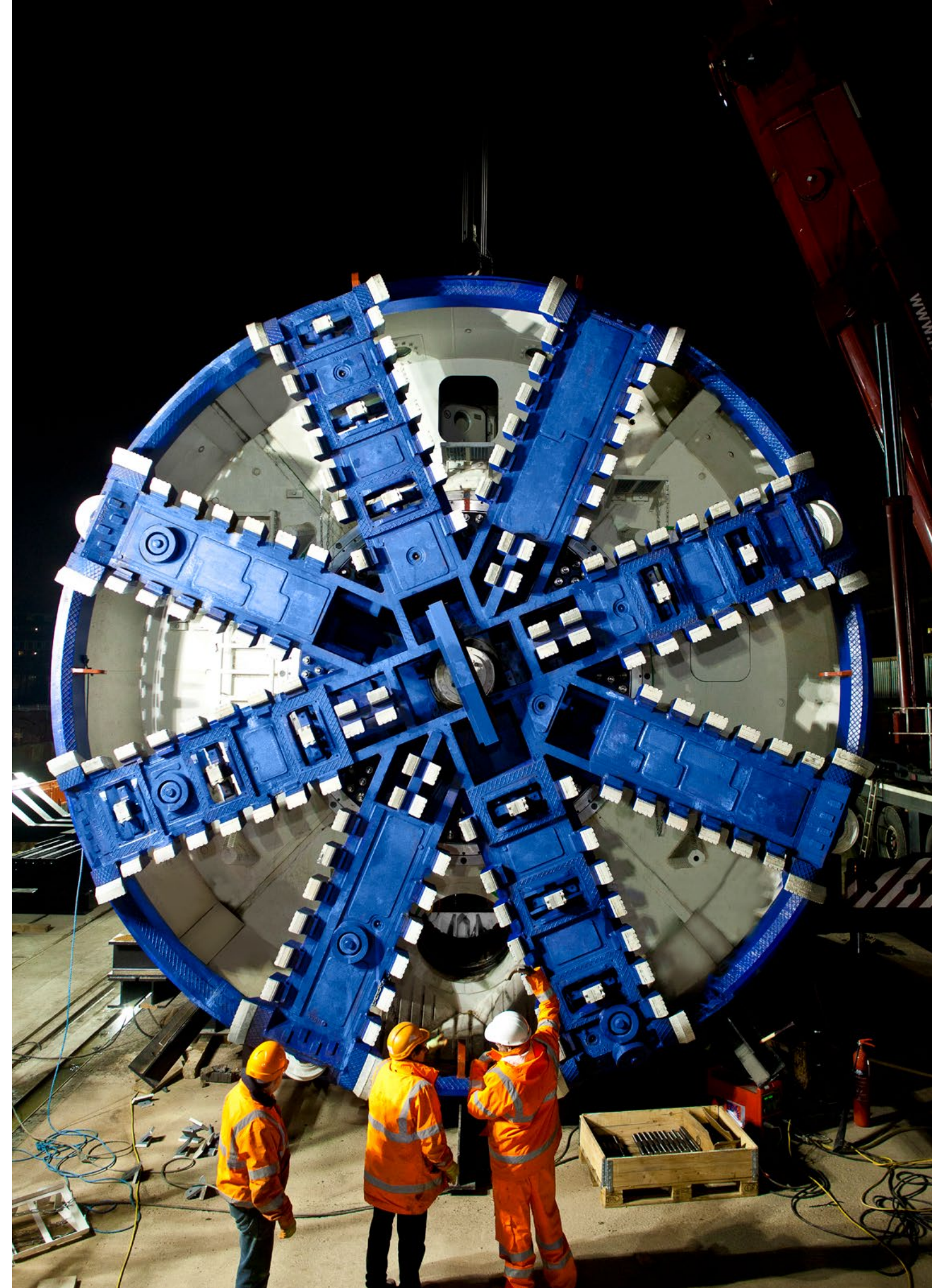
The tunnel boring machine (TBM) reached the rotation chamber in Greenwich on 15 February 2023, completing the tunnelling of the first bore, which was a significant milestone for the project. The TBM has been successfully manoeuvred into position for the northbound drive and started the final leg of its journey on 23 May. This is a significant achievement for the programme as it represents successful completion of one of the most complex TBM manoeuvres undertaken.

Construction has commenced on the new walking and cycling bridge across the A102, the southern approach road for both the new Silvertown Tunnel and the Blackwall Tunnel. This will replace the existing 1960s footbridge with a new, fully accessible bridge built to modern design standards with improved lighting. The new bridge will provide a safe and easily accessible crossing for those walking and cycling, including those using cargo bikes, on the Greenwich Peninsula and to accommodate future neighbouring development proposals. The main span of the new bridge was installed in March, and the existing bridge will be kept in use until the new bridge is fully opened.

Green agenda

Riverlinx, our construction partners on this project, have so far saved 690 tonnes of carbon dioxide by using river transport for delivery of materials and removal of waste. This equates to 40,368 heavy goods vehicle movements being removed from local roads.

The introductory cross-river bus network for Silvertown Tunnel was finalised in March 2023. The network includes routes 108 (existing service using Blackwall Tunnel), 129 and X239; they will begin operating when the Silvertown Tunnel opens in 2025. We will be working to deliver a zero-emission bus fleet across all three routes.



Boring of the northbound Silvertown Tunnel is in progress

Network extensions

Barking Riverside Extension

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q2 2022/23	332	(5)	327	329	2
Change since last Investment programme report					
No change	3	(4)	(1)	No change	

Financial commentary

There have been minor changes to the EFC which continues to remain stable since the last report. The negative cost-to-go values are driven by future opportunities that are expected to materialise throughout 2023.

Performance over time commentary

Our forecast end date for when services will run between Gospel Oak and Barking Riverside has been delayed since the programme and project authority was approved in 2018, following the discovery of uncharted utilities and the Safe Stop because of the coronavirus pandemic. The Safe Stop resulted in rail systems works being replanned and Network Rail possessions rebooked, with the EFC increasing because there are only two opportunities a year for a four-day possession. Additional works were required to resolve concerns over signal sighting, which impacted the completion of the scope and main contract.

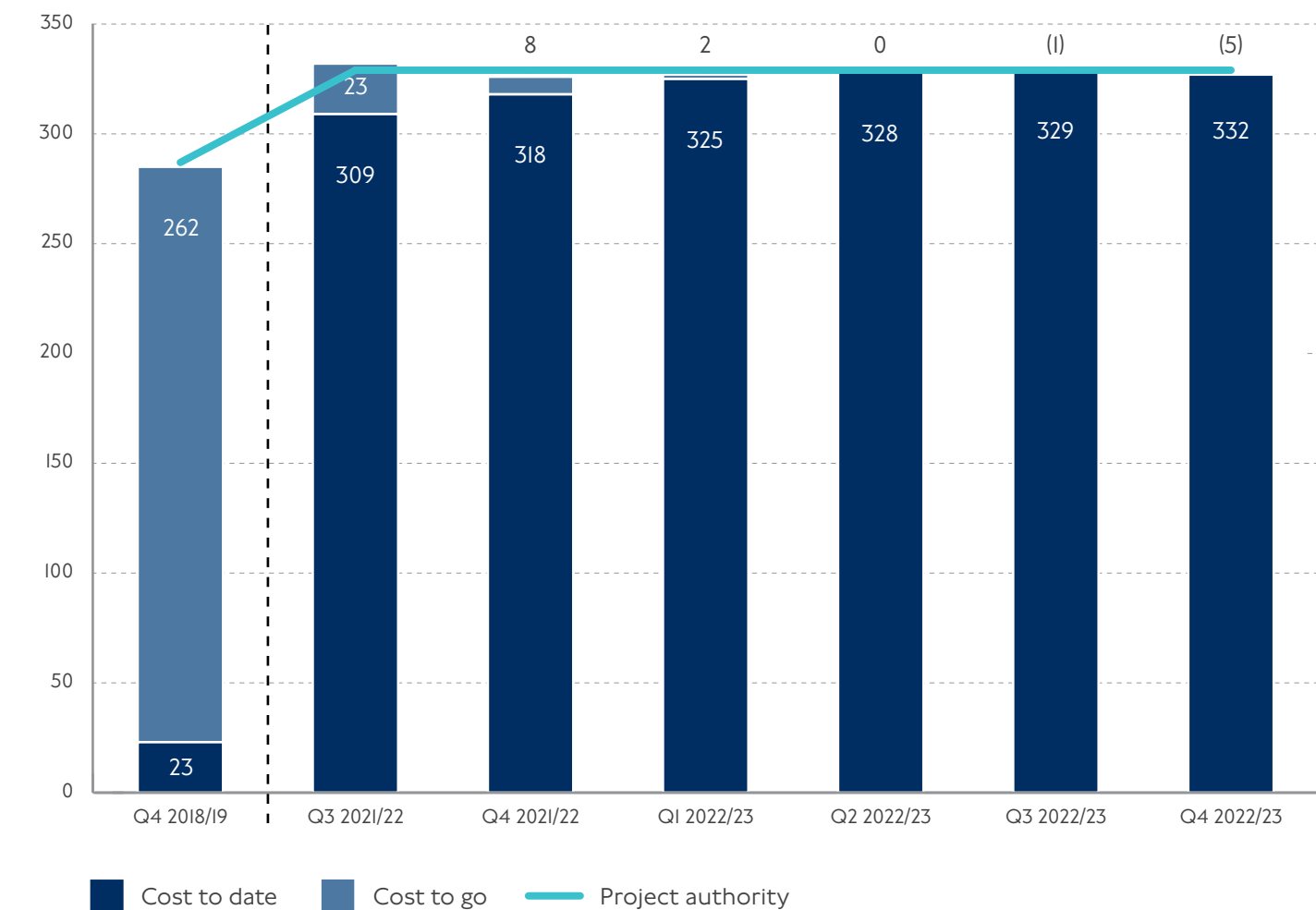
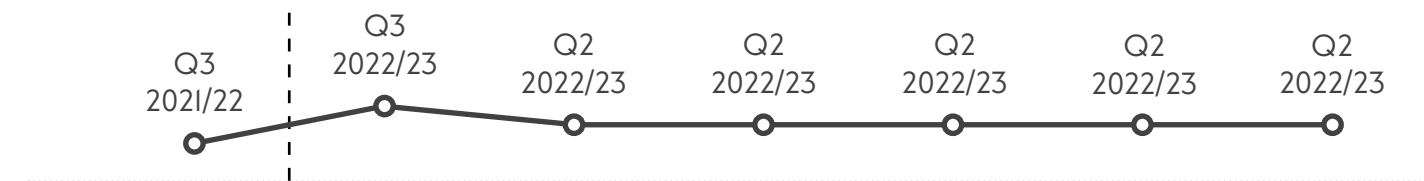
Programme update

The new extension between Gospel Oak and Barking Riverside opened on 18 July 2022 and has been running a good service.

Signal assets have now been transferred to Network Rail (NR) following the commissioning of the banner repeater signal in January 2023.

Estimated final cost performance over time (£m)

Forecast completion date



Major station upgrades

Bank station capacity upgrade

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q4 2022/23	690	12	702	702	—
Change since last Investment programme report					
No change	4	(4)	No change	No change	

Financial commentary

The EFC has remained stable since the last report and spend is in line with current forecasts. The opening of the Cannon Street station entrance was delayed from December 2022 to February 2023, due to issues relating to manufacture and installation of cladding panels and commissioning of safety-critical systems. The Cannon Street entrance was formally opened by the Mayor of London on 27 February. Final snagging and close-out works are being completed following the successful opening.

Performance over time commentary

The forecast end date represents the opening of the new Cannon Street ticket hall entrance at Bank station, which was achieved on 27 February 2023. Our estimated final cost has increased since the authority award in 2016, owing to site works being disrupted by the impact of the terrorist attack at London Bridge, the need for additional scope following the discovery of asbestos, and the impact of the coronavirus pandemic. In addition, the final phase of the programme was delayed by around three months due to issues

relating to manufacture and installation of cladding panels and commissioning of safety-critical systems.

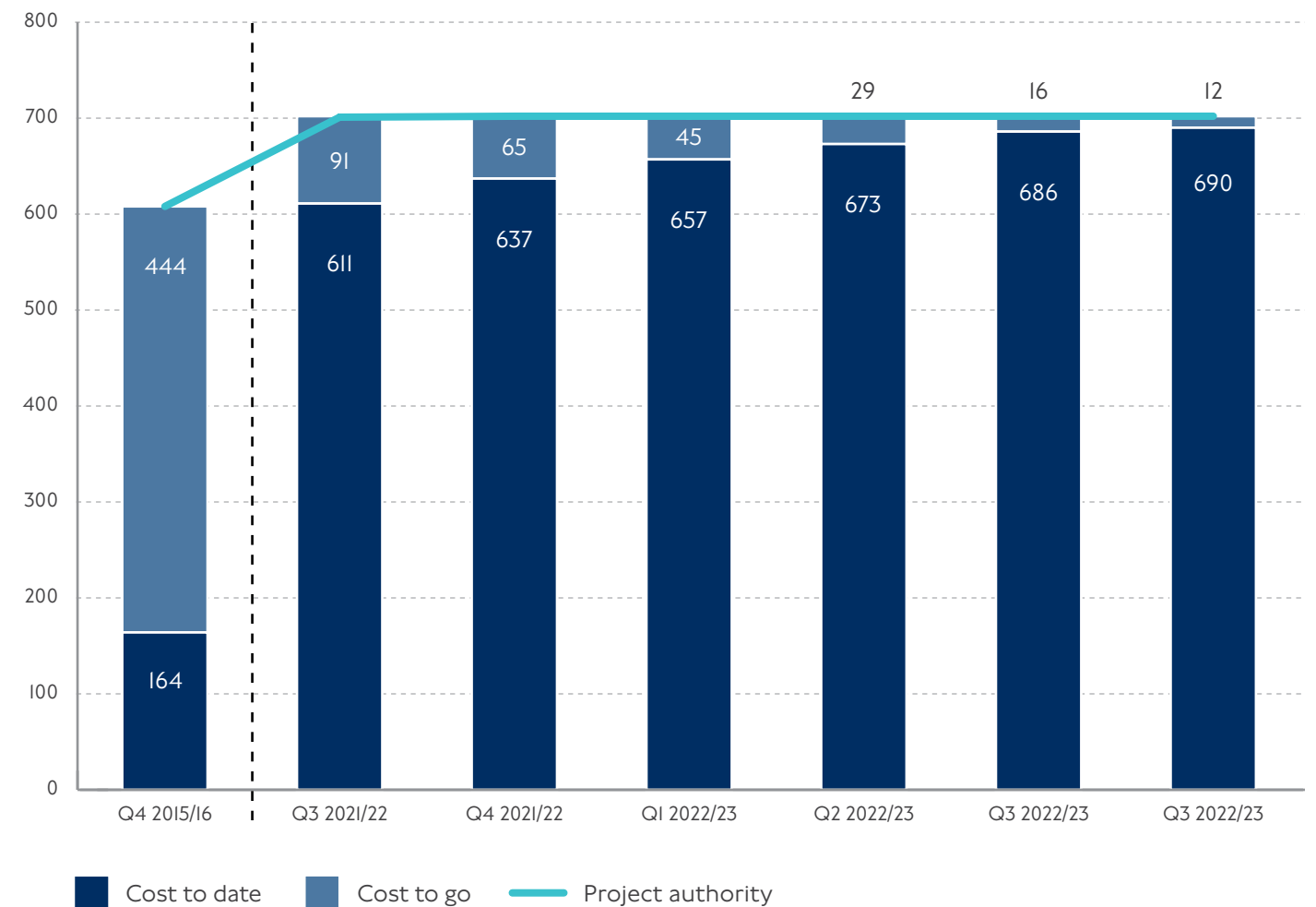
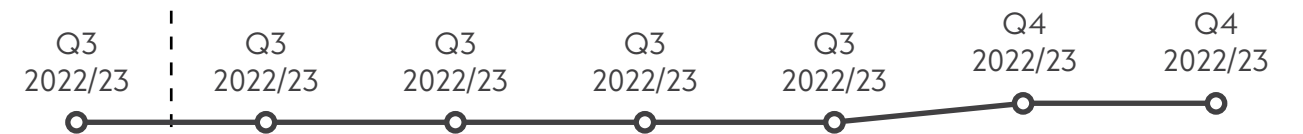
Programme update

This project increases the station's capacity by approximately 40 per cent. It has also resulted in improved passenger flows, reduced journey times and enhances the overall customer experience. Improvements include step-free access to and from the Northern line, improved access to and from DLR platforms, two new moving walkways, 12 new escalators and two new lifts to serve the Northern line and DLR. There are more direct routes within the station and a new station entrance on Cannon Street.

The new street-level entrance on Cannon Street was officially opened by the Mayor of London on 27 February 2023. This includes six further escalators between street level and Northern line platform level, step-free access between street level and the Northern line platforms for the first time and improved step-free access to and from the DLR via new lifts. This completes the transformation of Bank which is a significant milestone.

Estimated final cost performance over time (£m)

Forecast completion date



Elephant & Castle

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Gross EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q4 2027/28	23	63	86	87	1
Change since last Investment programme report					
No change	3	(4)	(1)	No change	

Financial commentary

Since the last report, the EFC has remained largely stable, with a small decrease due to permanent power supply works no longer required as part of stage 1 works (station box and tunnelling works). This scope has now been moved to the stage 2 works (station fit-out) which are currently unfunded. Variance in cost to go is mainly attributed to third-party funding reported in 2022/23.

Performance over time commentary

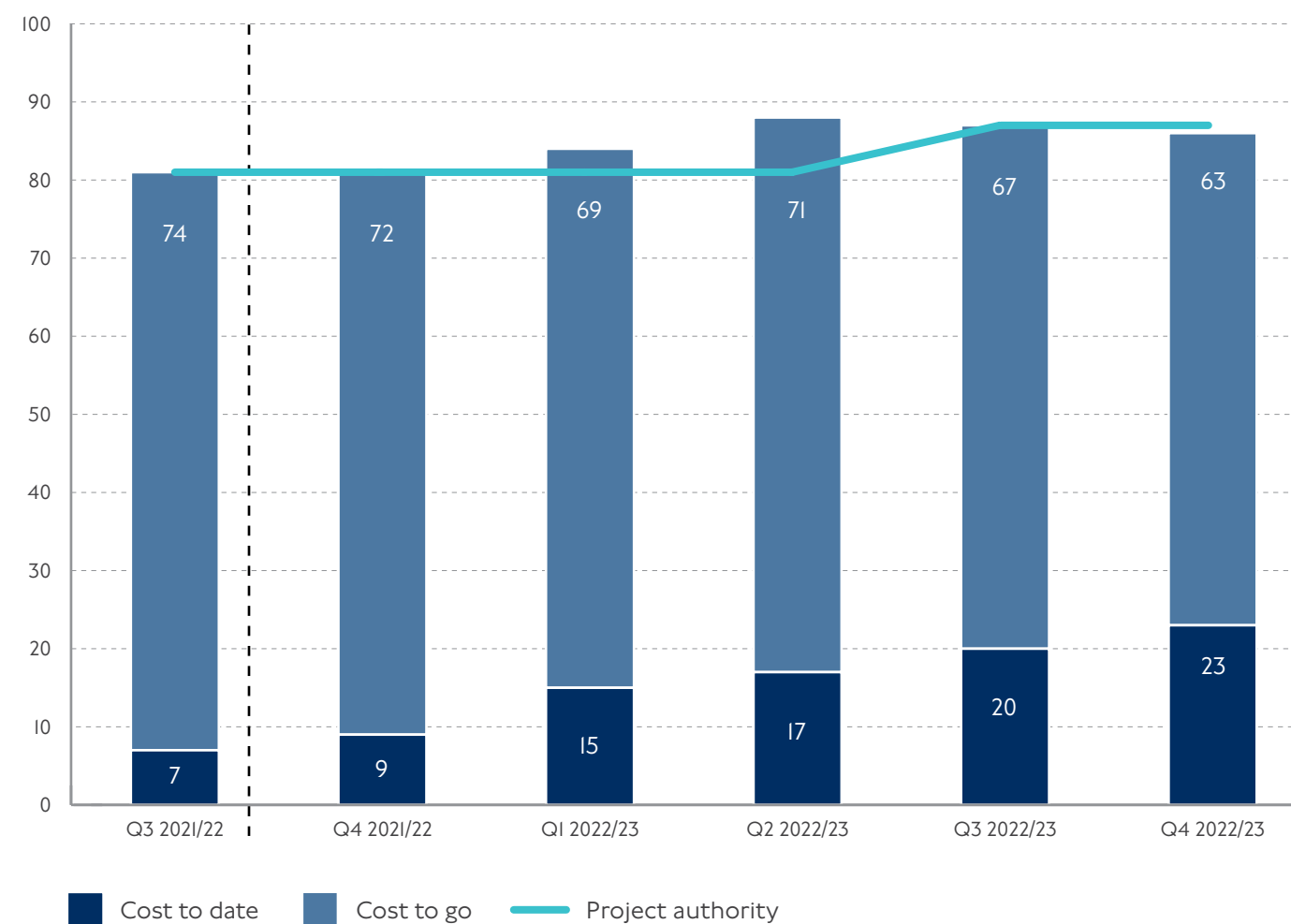
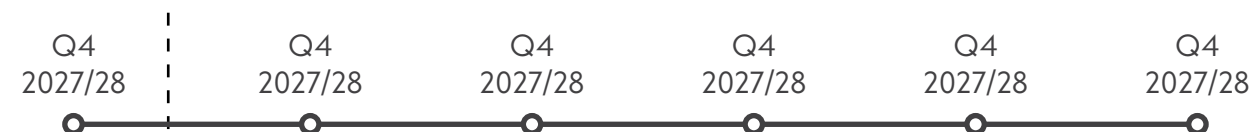
The completion of station tunnelling works is forecasted to be completed in February 2028, which remains unchanged.

During 2022/2023, the project EFC increased owing to the impact of inflationary pressures. In October, the Programmes and Investment Committee approved an increase of £5.5m to authority to cover the inflationary increase and bring forward scope from stage 2 to lower the risk of future communication works.

Subsequently, the project team has further analysed the benefits and have determined better value can be achieved by deferring some of this scope back to later years (stage 2). Effective change control has aligned latest budgets with this revised approach. The EFC will continue to be challenged and we have engaged the construction market much earlier than is the norm, providing suppliers with more time to identify opportunities in a competitive market.

Estimated final cost performance over time (£m)

Forecast completion date



Programme update

We are progressing with the procurement arrangements for the new tunnels, with an invitation to tender scheduled for June 2023. A contract for essential pre-tunnelling ancillary works was tendered, responses were analysed and the contract was awarded in May 2023. All of these works, plus the station box, are known as stage 1 works and are fully third-party funded. However, stage 2 works covering the station box fit-out are currently unfunded.

Construction of the station box by the developer continues apace, with station box piling completed. Station box handover by the developer remains as planned in early 2025.

To support the procurement of the tunnelling works contract, an additional package of works has recently commenced to undertake additional ground investigation in the area around Newington Butts. Our close co-operation with the developer has led to them sharing their ground investigation results and this work will add to their findings.

Additionally, we have progressed the procurement of a package of work to determine options for the eventual fit-out of the station box and tunnels and bringing the new station entrance into use (stage 2 works). Invitations to tender were issued in October 2022 and the contract was awarded to Arcadis in January 2023. Arcadis has produced the first draft report for consideration before pricing by Currie & Brown, who are acting as an independent cost estimator.



Work is progressing on our Elephant & Castle upgrade programme

High Speed 2

Forecast completion	Cost to date (£m)	Cost to go (£m)	EFC (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
Q2 2033/34	31	38	69	34	(35)
Change since last Investment programme report					
No change	3	(3)	No change	No change	

Financial commentary

Programme and project authority is £35m lower than EFC, as it is granted on an annual basis for the following year's spend. Approval of the authority for the next financial year is planned for summer 2023. All costs are fully reimbursable from the third-party High Speed 2 (HS2) project. As part of the annual Programmes and Investment Committee submission, authority was increased by £6m in May 2022.

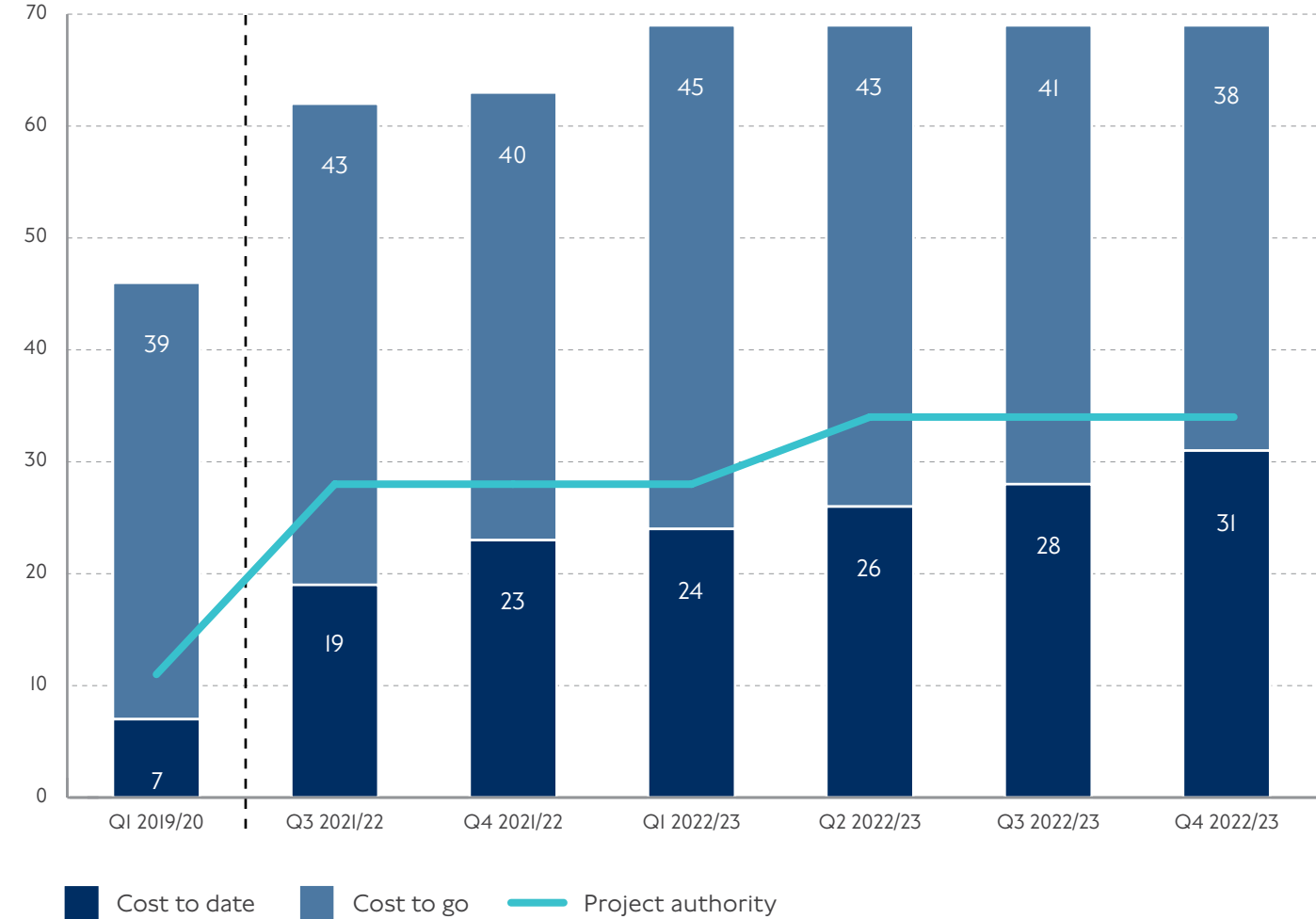
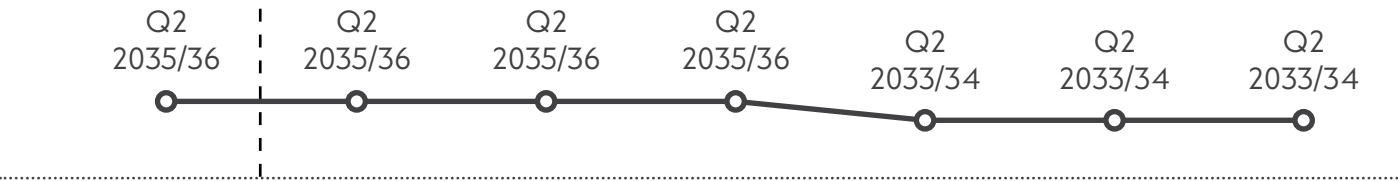
Performance over time commentary

The forecast end date was amended in Quarter 2 from 2035/36 to 2033/34 to reflect the earliest completion date of works at Euston, as advised by HS2 Ltd. This programme comprises our new assets, infrastructure and operational facilities at Euston and Old Oak Common to interface with the new railway.

Since 2019, the forecast costs have increased due to additional scope being requested by HS2 Ltd, which are fully recoverable. As part of the annual Programmes and Investment Committee submission, the project and programme authority was increased by £6m in May 2022.

Estimated final cost performance over time (£m)

Forecast completion date



Programme update

On 9 March 2023 the Department for Transport announced a rephasing of some elements of the HS2 programme. This means works between Old Oak Common and Birmingham will be prioritised, with some works between Old Oak Common and Euston deferred for at least two years. The deferral will allow for a period of review and pause of the HS2 station and London Underground interchange to focus on affordability. We are working with HS2 Ltd to assess the scope of the remaining works and to adjust the size of the deployed TfL resources accordingly.

The new Northern line traction substation and ventilation building is not impacted by the pause and HS2 Ltd's construction continues at Euston with the below-ground civils structures largely complete and works progressing above ground.

We are awaiting a decision by the Department for Transport on the transport of materials by rail following the feasibility study by HS2 Ltd, which concluded that this was no longer feasible on the grounds of cost. The TfL Commissioner and Chief Executive of the London Borough of Camden have jointly written to the Chief Executive of HS2 Ltd to express our concerns about road safety, air quality and congestion if HS2 Ltd continues with its intention to transport spoil by road.

The intensive utilities enabling works on Euston Road were started by HS2 Ltd at the beginning of 2023 with major lane and footway closures commencing on 20 February. The initial eastern section to remove the central reservation has now been completed but the remaining sections will not now go ahead as this workstream is suspended by the deferral. We are working closely with HS2 Ltd to agree the reinstatement of the eastern section of Euston Road.

Despite the affordability challenges for the HS2 project, we continue to work with The Euston Partnership to ensure our requirements are met for the future bus station, taxi rank, cycle parking and London Underground station at Euston. Engagement with the partnership on the integrated development of the Euston campus of University College London also continues, including the refurbishment of the existing Euston national rail station.

The works at Old Oak Common are not impacted by the Euston design pause and we continue to work with HS2 Ltd on the design development of the new surface intermodal area. In particular, we have reinforced the need for our requirements to be met for buses, cycling and the new Elizabeth line station, which includes the need to secure level access.

Given the likelihood of a prolonged period of Old Oak Common being London's temporary terminus for High Speed 2 services, we continue to make representations about the need for level boarding between Elizabeth line and HS2 services and the serious concerns we have regarding the likely overcrowding of Elizabeth line services.



Ensuring HS2 is integrated with our network at Euston is a priority

Railway systems enhancements

Forecast completion	Gross cost to date (£m)	Gross cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
2018/19 to 2028/29	149	16	165	171	6
Change since last Investment programme report					
No change	1	1	2	No change	

Financial commentary

Since the last report, the EFC has increased by £2m. This is due to prolongation of programme management resource as Jubilee and Northern line signalling projects are extended or rephased to accommodate other priorities and rework across the TFL and Thales portfolio. Additionally, there have been cost increases for new emerging scope for safety-related works on the Jubilee line.

Performance over time commentary

Since the last report the EFC has increased by £2m for the reasons already mentioned in the financial commentary.

Programme update

Delivery of the scheduled Northern line signalling software updates continues, with the first release targeted for commissioning on the railway in Quarter 3 2023/24 and the final in Quarter 2 2024/25. This later release has been rephased to accommodate other priorities in TfL Capital that are dependent on the same supplier key resources. These priorities include the Four Lines Modernisation and DLR rolling stock replacement programmes. The

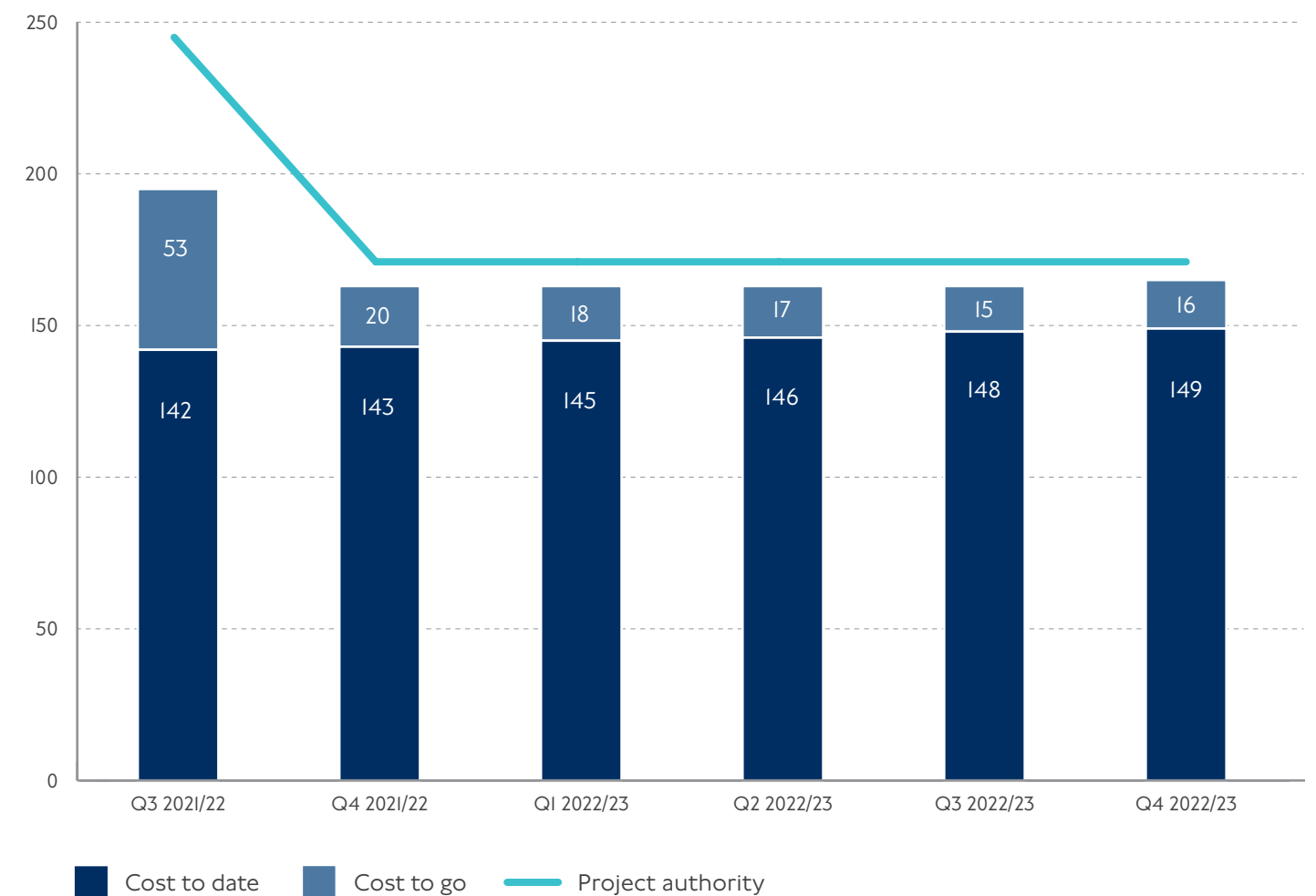
Northern Line software updates address residual issues and requirements following completion of the Northern Line Extension and the Bank station closure works.

Delivery of the Jubilee line signalling software updates also continues, with the updates addressing residual issues. The first software release was commissioned onto the railway in Quarter 3 2022/23, and the final software release is still being planned, accounting for dependencies on other projects such as the Four Lines Modernisation programme.

The enhancement work for the Northern line power supply was completed in Quarter 4 2022/23, with some minor close-out activities continuing. This has provided system capacity and resilience for reliable services during planned or unplanned outages.

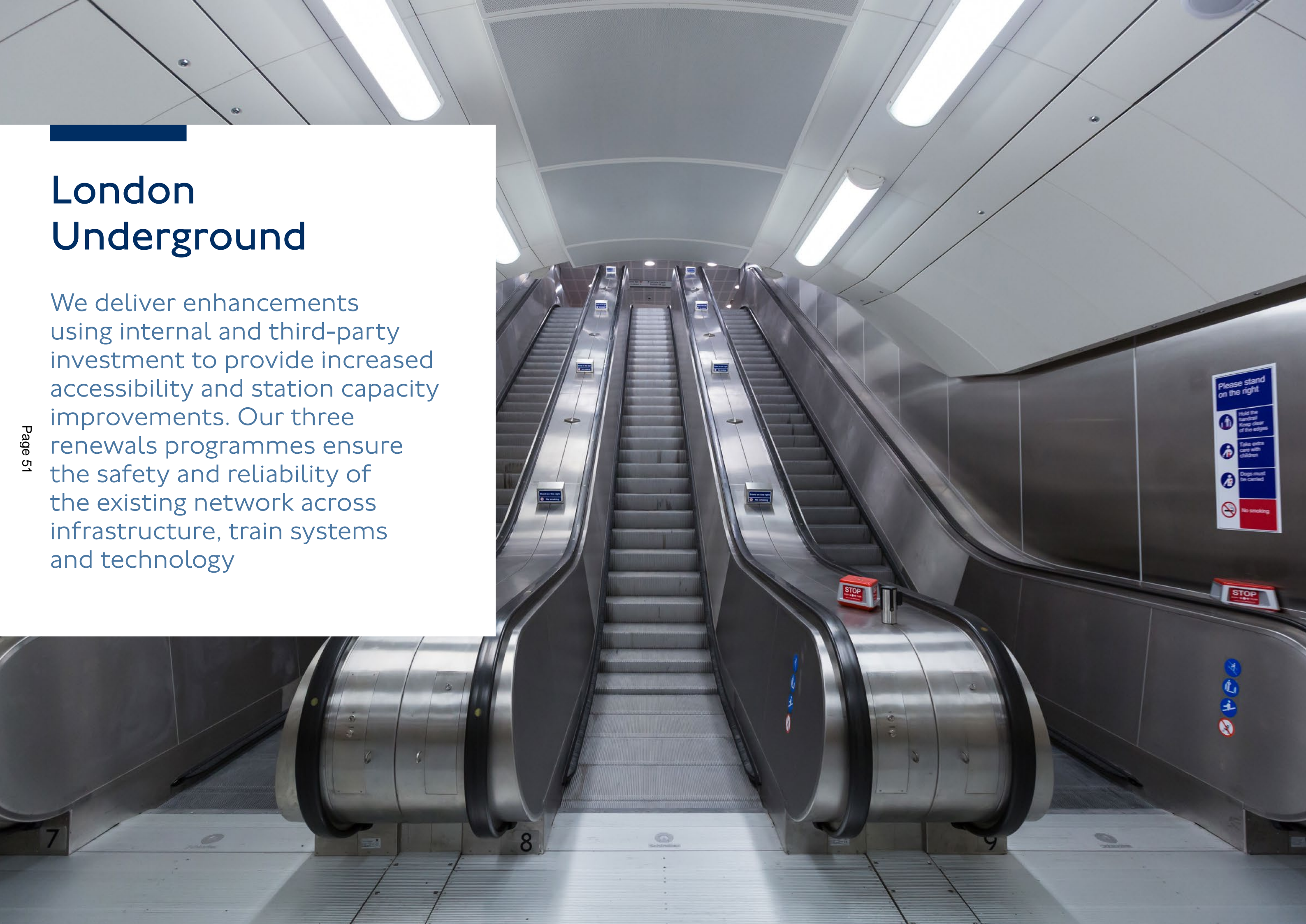
The rolling stock works to enable an increase in entry and exit speeds at Neasden depot are on target for completion in Quarter 3 2023/24. These will support Metropolitan line service uplifts being delivered as part of the Four Lines Modernisation programme.

Estimated final cost performance over time (£m)



London Underground

We deliver enhancements using internal and third-party investment to provide increased accessibility and station capacity improvements. Our three renewals programmes ensure the safety and reliability of the existing network across infrastructure, train systems and technology



Train systems

Forecast completion	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
2022/23 to 2027/28	238	1,710	1,948	1,791	(157)
Change since last Investment programme report					
No change	86	(118)	(32)	No change	

Financial commentary

In common with other portfolios, our current renewals funding is insufficient to deliver all the required work to maintain service performance. Ongoing asset prioritisation will be used to identify the most critical work to progress.

Key movements since the last report include a cost to date increase of £86m reflecting strong performance in the quarter by Fleet Overhauls accounting for £49m, and Track accounting for £29m with the balance delivered by Signals upgrades. Reductions of £118m in cost to go and £32m in EFC are predominantly due to rephasing within fleet overhaul.

Performance over time commentary

Train systems delivered to budget, taking our full year spend to £238m while achieving £8m of efficiencies and cost savings. The accelerated performance in the quarter was assisted by improved performance reviews across the asset areas to allow us to focus on key issues such as identifying cost savings, resourcing and supplier performance. Delivery confidence in next year's budget is high. There are planned increases in volumes of track and fleet overhauls and we are moving to the main delivery phases on projects such as the Central Line Improvement Programme and incremental signalling renewal projects.

Programme update

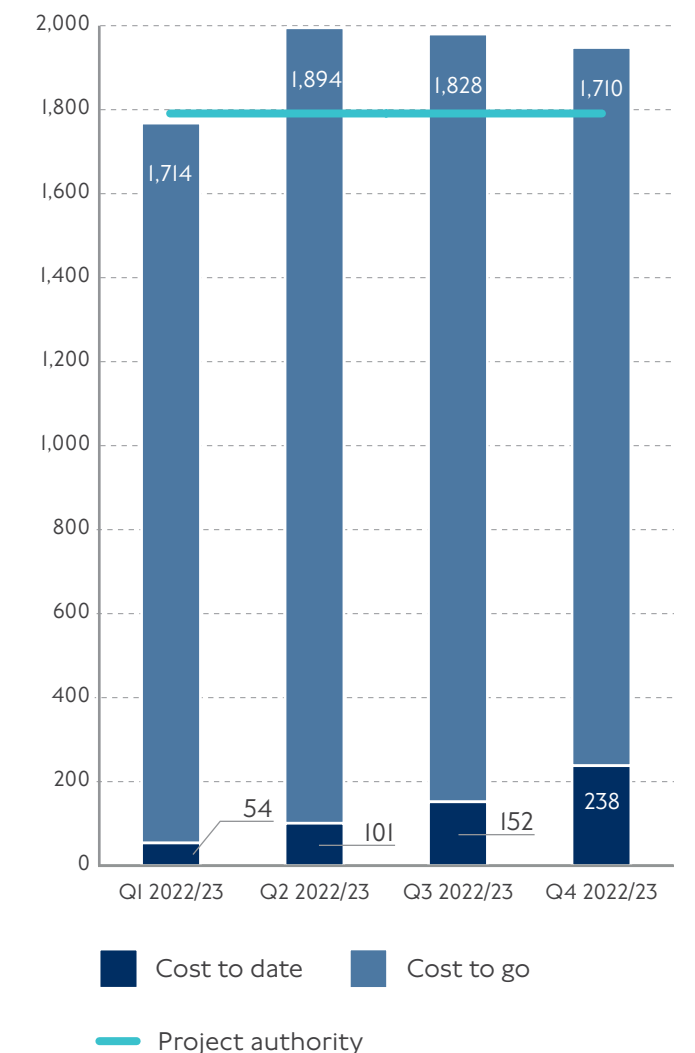
This programme delivers critical renewals across multiple asset groups that form an integrated train system. It includes work on track assets, passenger fleets, engineering fleets and signalling assets.

Our track assets are an essential component of a safe and reliable railway. Track is continually degrading and needs ongoing maintenance and renewals to keep it in good working order. We must renew two to three per cent of our track every year (based on a 20 to 60-year lifespan), as well as to make ongoing component replacements to maintain safety and reliability. Where possible, we also aim to install high integrity, low maintenance modern track forms.

We have more than 600 Tube trains operating across 11 lines, with the oldest trains having entered service in the 1970s. Interventions are based on our long-term fleet cost model, which feeds into our long-term capital plan.

To ensure train fleets remain safe and reliable for an increasing in-service life, we conduct a range of planned interventions consisting of heavy overhauls and renewals (mid-life refurbishments and life-extension projects). In addition, we deliver specific work to improve accessibility and customer satisfaction, such as better lighting and CCTV. These works address changes in regulations arising from safety issues, poor reliability and performance, unacceptable costs or system obsolescence.

Train systems performance over time (£m)





Overhauling our fleet ensures continued passenger safety and comfort

Our heavy overhauls work delivers large scale activities on our existing fleet of passenger rolling stock and rail adhesion trains to ensure all core systems meet the required standards. The work requires each train to be removed from service for several days or weeks, and includes overhauling suspension, wheelsets, motors, brake systems and auxiliary equipment.

Signalling and control upgrades continue to keep our systems up to date and in serviceable condition. This avoids higher costs at a later stage, while also ensuring safety, continued reliability and that the overall cost is spread across a closely monitored timeline.

The engineering vehicle fleet supports the track renewals programme and comprises battery locomotives, wagons for different activities and plant equipment such as cranes and tampers. We aim to improve the reliability of this non-passenger fleet, responding to component obsolescence problems and supporting our overarching aim of mechanising track-based activities where possible. Our intention is to facilitate enhanced productivity and an improved safety culture.

Key successes this quarter

Across all lines there has been sustained strong performance of routine works in track and fleet overhauls, delivering to plan and meeting strategic milestones. In addition, the Central Line Improvement Programme (CLIP) had a major success in March, achieving full design sign-off for the very complex multi-system renewals work. Our drive to reduce the environmental impact of our train systems continues;

the CLIP design sign-off includes LED lighting and a new power system that reduces energy consumption, delivering regenerative energy back to the network. We have also delivered LED lighting on 16 Bakerloo line trains, with further trains due to be completed in 2023/24.

Core track renewals

In Quarter 4, 1,285 metres of bullhead rail was converted to flat-bottom rail, taking the total flat-bottom rail conversion to 5,546 metres over the year. Additionally, our capital delivery milestone for deep Tube track renewal was exceeded, delivering 1,827 metres, 24 per cent above our target of 1,471 metres. At Royal Oak, 102 metres of ballasted track renewal was delivered in Period 13 (3 to 31 March 2023), exceeding the capital delivery milestone.

Points and crossings

As previously reported, we renewed four sets of points in Parsons Green that were commissioned in July 2022, and installed a new set of points at Tower Hill commissioned in October 2022. In delivering these sites we met our 2022/23 target for points and crossings.

Victoria line (fleet overhaul and depot signal renewals)

Work continued upgrading the pressurised ventilation fan system to reduce maintenance costs, with a further 10 trains completed, taking the total to 46 of 47 trains. Delivery of the coupler overhauls continued, with an additional 12 completed, also taking the total to 46 of 47. Door overhauls continued to plan and 31 trains have completed their phase one works.

Metropolitan line (fleet overhaul)

The revised delivery rate of two trains per period was sustained and the project has delivered eight additional bogie overhauls, taking the total to 32 of 60 trains. Work has continued to prepare for the start of the S8 fleet doors overhaul and couplers overhaul, both due to start in 2023/24.

District line (fleet overhaul)

Work continued to prepare for the start of bogie overhaul on the District line, which is planned to follow directly after the Metropolitan line overhaul scheduled for completion in August 2024.

Jubilee line (fleet overhaul and component renewal)

The bogie overhaul has continued just ahead of plan, with overhaul now complete for seven trains. The project has supported mitigations needed to keep the trains in operation until heavy overhaul takes place.

Jubilee and Northern lines (incremental signalling upgrade)

The design stage of replacement of central computers for the Jubilee and Northern lines is progressing well, with key enabling works completed during Quarter 3 2022. The procurement activities leading to award for the replacement of train operator displays on the same lines is also under way with award forecast for Quarter 2 2023.

Piccadilly line (fleet overhaul and signalling renewals)

Work continues on the second lift cycle to overhaul 59 units' bogies. We have now completed 64 per cent of the second lift. Wheels and motors have continued to be overhauled in line with maintenance requirements.

Rewiring of the interlocking machine room at Acton Town has progressed through design and works began on February 2023.

Central line (fleet renewals and signalling renewals)

In early March 2023, CLIP met its strategic design milestone and has begun full production of all nine sub-systems, from AC traction to CCTV. This strategic design milestone means that all the CLIP sub-systems can enter mass production, and since 3 April we have had more than 100 fitters on site working on four trains simultaneously.

Progress continues on the Central line signalling life-extension projects, with a preliminary design review held with Siemens at Chippenham for the automatic train operations and automatic train protection test rigs. Four track circuits were commissioned in December 2022 at the Ruislip test track, with one further commissioned on 1 April 2023.

Installation and testing activities are ongoing at eight further sites, with commissioning activities planned in the next period at two of these sites.

A human factors workshop was undertaken on the signal control system with operational colleagues. A reliability, availability and maintainability analysis is in the final stages of sign-off. Once this is completed, hardware installation can begin within the equipment rooms and control centre.

Progression of wiring diagram updates by our contractor has continued; however, this is progressing slightly slower than we would expect due to quality issues identified with the submissions which require rework. Further risk reduction workshops have been held to mitigate any delays to the programme.

Bakerloo line (fleet overhaul, LED lighting conversion and signalling upgrade)

Work continues on heavy overhaul activities, and actions are in progress to bring these under formal capital project delivery governance, in line with heavy overhaul of other fleets, to increase delivery efficiency and certainty. We completed LED fitment on 16 trains on 29 March 2023.

The procurement of signalling equipment and design works is ongoing for the Bakerloo line control room fit-out works and the control system upgrade. We continue to install the key signalling and control interface equipment in lineside rooms on the Bakerloo line. Nine sites have been completed, with Lambeth North under way.

Bakerloo, Central and Waterloo & City lines (accessibility)

Department for Transport visit at Stonebridge Park depot to see first-hand the challenging works undertaken by the team, especially on the new passenger information system. The visit gave us the opportunity to demonstrate the next steps we need to take to meet RVAR compliance. A Department for Transport site visit to Acton works is also planned for Quarter 2 2023/24 to preview progress on the Central line RVAR works. Work will be completed on 15 train units by April 2024, with full completion scheduled for July 2025.

Depot control systems

The main depot control project at Northumberland Park has been deferred. This has mainly been driven by necessary re-prioritisation of engineering resources to support the introduction of new trains on the Piccadilly line, which also requires control system works. The Northumberland Park depot project will re-start after the Piccadilly line upgrade is delivered using lessons learned, and common technology and designs where possible. Remedial and small renewals will continue at Northumberland Park in the meantime.

Rail adhesion train

The overhaul of the 62TS rail adhesion train started in January and the first unit is substantially complete. Preparations are being made for the second and final unit to return to Acton. The timely delivery of this work is essential to ensure the impacts of poor rail adhesion during the leaf fall season are mitigated.



Page 59

Our engineers work on all aspects of train systems

Mechanised track renewal vehicle

The series of trials for prototype mechanised renewal vehicles was completed in February 2023 as planned. There are modifications to improve safety and in-vehicle access prior to further prototype trials in August. Completion of this work will continue to build confidence in advance of the vehicles being used to support track works in 2023/24.

Rail-mounted crane

The team successfully obtained single crane operation (open section) assurance approval for Kirow cranes and progressed to work on similar approvals (sub-surface tunnel sections) for the Gloucester Road track renewal in July 2023. The two other assurance approvals for tandem lift (open and sub-surface tunnel) sections have moved to late 2023/24.

Track recording vehicle

Maintenance works have been carried out on the track recording vehicle (TRV) to meet the conditions set out in the concessions. The vehicle, more than 55 years old, requires significant maintenance and monitoring to remain in operational use. The TRV suffered an outage in January 2023 and missed critical track recording on the Central line. As a result, the project engineering teams prioritised supporting the maintenance teams in recovering and repairing the TRV to return to operation. This has caused a delay to project activities to test and commission the seven-car TRV train that mitigates the Four Lines Modernisation signalling upgrades.

Engineering vehicle overhauls

The delivery of the engineering vehicles overhaul programme has been impacted by supply chain issues. We have embarked on a 'make vs buy' exercise to develop an alternative strategy to overhaul the wagons and expedite the return of these assets to operation.

We began the overhaul of the first of two Matisa tampers with the other to follow in the new financial year, including a strategy for in-house overhaul of the three Plasser tampers. Engineering signed off the locomotive bogie frame repair process after successfully completing the trials. This will be integrated into the overhaul programme of traction and other works.

Infrastructure renewals

Forecast completion	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
2022/23 to 2027/28	82	531	613	1,192	579
Change since last Investment programme report					
No change	35	(37)	(2)	No change	

Financial commentary

In common with other portfolios, our current renewals funding is insufficient to deliver all the required work to maintain service performance. Ongoing asset prioritisation will be used to identify the most critical work to progress.

Systems and infrastructure achieved their budget with £35m delivered in the last quarter. The variance between programme and project authority and forecast is £579m reflecting historical authority for this programme. We are establishing a new baseline for programme and project authority to reflect changes in spending priorities; this will be presented with the new combined London Underground renewals paper in September.

Forecast cost has reduced £2m since the last report primarily due to reprioritisation of lifts and escalators scope combined with acceleration of staff welfare.

Performance over time commentary

The Infrastructure Renewals programme five-year forecast remained constant in Quarters 1 and 2. Between Quarter 2 and the end of the year, however, an overall £14m reduction is observed following a re-prioritisation and rephasing of activities across all asset areas into future years to match affordability and delivery confidence.

Programme update

The infrastructure renewals programme delivers critical interventions to the assets that support the London Underground network. The programme includes work on the built environment, civils and structures, power assets, as well as lifts, escalators and building systems assets. The work bank is prioritised to address asset condition concerns to maintain the safety and reliability of the railway.

We have 30,000 building and civil assets across the network, providing structural support, stability and protection. The asset base includes more than 16,000 bridges and structures, 235km of embankments and cuttings, as well as tunnels, lighting masks and flood protection assets.

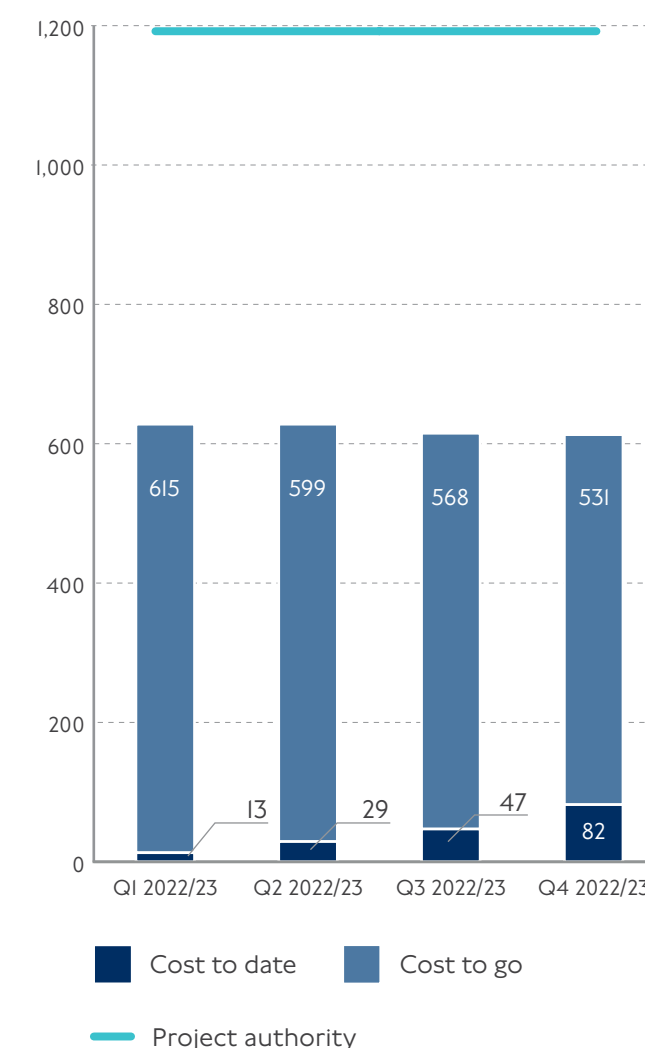
Our complex building systems assets (mechanical, fire, communications, power and electrical) ensure that stations, depots and other sites operate safely and effectively. The work is prioritised on the state of good repair of the assets and to address specific asset condition concerns.

London Underground is the largest consumer of power in London. We operate our own high-voltage distribution network and backup power generation. Based on the state of assets and their expected lifespan, we deliver a rolling programme of renewals to maintain the integrity of power delivery to the railway.

We have 526 escalators, 327 lifts and six passenger conveyors on the London Underground network. These are essential to ensuring customers have safe, reliable and quick access to our services. We deliver a rolling asset renewal programme aiming to deliver renewals and replacement to escalators every 40 years and lifts every 20 to 40 years, depending on the type. This means replacing around 2.5 per cent of escalator and four per cent of our lift assets each year to maintain the current level of good repair

The rolling programme of systems works, including lifts and escalators, continues to plan with two Jubilee line escalator works completed this quarter. We are also on track with our work to deliver energy efficient LED lighting changes at 20 stations in the next financial year. This will reduce operating costs and support our wider carbon reduction aims.

Infrastructure renewals performance over time (£m)



Key successes this quarter

The Plaistow substation roof replacement project has installed a new roof to replace the old one containing asbestos, delivered five months earlier than planned thanks to strong project management. This was achieved within the agreed project authority and with a £200k saving to budget. We have also seen positive progress on the rolling renewals programmes, with communication systems renewals completed at King's Cross St Pancras and two further Jubilee line escalator refurbishments delivered to plan. In addition, there has been significant progress on survey work to facilitate further delivery in 2023/24.

Water ingress remediation

Feasibility surveys have been completed at St Paul's and Chancery Lane stations. Work to complete the options for remedial works and seek agreement with stakeholders has been extended due to the identification of further instances of water ingress. The options have been agreed in preparation for final approval with stakeholders in June 2023.

Concept designs at Liverpool Street and Charing Cross were finalised in April 2023 and will be agreed with stakeholders in June 2023. Drainage surveys for Mayor Sworder's Arches substation in London Bridge were completed in February 2023 and the concept design will be completed in June 2023.

Cutting and embankments

Works are continuing to stabilise the cutting between Grange Hill and Chigwell stations on the Central line to ensure the continued safe running of the railway. Piling works have been completed and the final regrading works paused to incorporate additional work, including anchoring works to the road bridge on Hainault Road and works around the footbridge coming off Hycliffe Gardens. The inclusion of these additional works will save time and money, with the full project now due for completion in December 2023.

Plaistow substation roof replacement

Works to replace the life-expired asbestos roof were completed five months ahead of plan thanks to strong project management. The project completed a series of complex interventions including installation of a scaffold cocoon and crash deck above live high voltage sub-station equipment and removal and installation of a new roof. All enabling works were also completed without any safety incidents. The principal contractor is now in the process of clearing the site, with final works to deliver scope for staff welfare improvements due to be instructed in early June and the possibility of addressing roof leaks at the station. The contractor is currently negotiating agreements with Network Rail for work above their track. This has been achieved all within the agreed project authority and with a £200k saving to budget.



Work is ongoing to address water ingress issues at St Paul's station

Station platform remediation works

Feasibility work for platform remedial works has been completed for 94 platforms at 41 stations. 'Quick win' remedial works will start in November 2023 and are scheduled to be completed in Quarter 3 2024/25. Design of remaining selected remediation options will begin in June 2023, and site works are scheduled for Quarter 1 2025/26.

Welfare facility renewals

Works have continued to improve the condition of welfare facilities and environment for staff across London Underground at 34 locations, including Sloane Square, Edgware depot, Highgate and Goodge Street stations. Staff welfare facilities include mess rooms, kitchens, locker rooms, changing rooms and shower and toilet facilities. Scoping surveys began in March 2023 and options development workshops been held for six locations.

King's Cross St Pancras communication systems

Works to replace a range of obsolete communications equipment at King's Cross St Pancras station, including station management systems, video, audio and alarm systems are in the final stage of the systems migration. The main systems installation and migration activities were completed in March 2023, ahead of programme, and operational colleagues are now using the new station management system.

Jubilee line communication systems

Upgrade and installation works continue to plan at Canada Water and Southwark stations, while site works progress to programme at the remaining four stations: London Bridge, Canary Wharf, North Greenwich and West Ham, scheduled for completion in Quarter 4 2023/24.

Jubilee line ventilation systems

We are progressing with works to upgrade the obsolete tunnel ventilation control panels and refurbish the fans of the staircase pressurisation system at Jubilee line extension stations (Southwark to Canning Town) and intermediate shafts, scheduled for Quarter 2 2026/27. All intrusive surveys for this project are now complete. Replacements of the ventilation management systems are progressing to programme.

Smoke and heat ventilation

Following design completion, we are now procuring material to replace and refurbish life-expired components that form part of the smoke and heat exhaust ventilation systems located in the roofs of Bermondsey station and Stratford Market depot. This is scheduled for completion in Quarter 2 2025/26.

Marylebone escalators

Work is ongoing on the final escalator refurbishment and is due to be finished in September 2023, with the works having been delayed by 12 weeks due to civils buildability issues related to the existing station infrastructure and contractor performance. The completion of the wider station gateline and an additional escalator should provide increased station capacity to support any further increase in customer demand. This is planned to complete in December 2023.

Jubilee line extension escalators

This rolling programme of escalator refurbishments has delivered two further refurbishments in this quarter at Waterloo and London Bridge stations, taking us to a total of eight in 2022/23, as planned. Works are ongoing on the next three refurbishments at Waterloo, Bank and Stratford stations to complete in Quarter 1 2023/24. We have re-prioritised the programme for the remainder of 2023/24 based on the latest asset performance data and have taken the opportunity to replace obsolete fire detection systems on future escalator refurbishments.

Liverpool Street escalators

The final premises finishes are in progress for the 12 sets of fire doors ahead of the replacement of three escalators. All 12 sets of fire doors have now been commissioned and are functionally live. Two operational trials have been completed to enable passenger planning, with the new Elizabeth line entrance live. Planned escalator replacement works to escalators seven-nine are forecast to begin in September 2023.

Holloway Road lifts

Following a design review, we identified a number of issues and are awaiting detailed responses from the supplier. However, this delay did not impact the planned start on site for the main works, which saw the lift removed from service to allow the works to begin in May 2023. Installation of new lighting to lift shafts started in April 2023 and was completed ahead of schedule.

Secondary lifts

Detailed design is progressing on five lifts, with the instruction to manufacture for the first three lifts issued at the end of April 2023. The start on site for the first lift (Hounslow East lift 1) is planned for September 2023, with the second starting in November.

Uninterruptable power supply

Works have now completed for tranche one, with all 22 life-expired units replaced and commissioned to ensure a continuous power supply to critical signalling assets on the railway. We awarded a new contract in December 2022, on plan to replace the next tranche of 31 units to enable continuous delivery into 2023/24 and beyond.

Offline battery power inverters

An offline battery power inverter is a battery system present on all sub-surface stations to power emergency lighting in the event of a power loss. There are around 260 located across the network and they are a critical asset as failure could result in station closures as emergency evacuation is compromised.

We have awarded a delivery contract to replace the first 20 units, and procurement is in progress for a second tranche of 40 to be awarded in Quarter 1 2023/24. Design works have started with our contractor to mitigate the obsolescence risk of the remaining units. Internal scoping and market engagement has begun for further units as part of the strategy work on the longer-term solution.

Traction power

Site work has continued for the replacement of 11 traction isolation switches at Ruislip depot to address equipment non-compliances and removal of operational restrictions. The final switches were commissioned into service in March 2023, completing the main project works.

Construction work has begun for the replacement of the direct current traction switchboard at Holborn. Detailed site investigations, civil designs and enabling works have been completed, which has allowed our contractor to begin building the new room to house the new equipment in April 2023, with expected completion in April 2024.

LED lighting

The LED programme works were temporarily paused for the majority of 2022/23 due to funding constraints. The funding agreement with the Department for Transport in August 2022 provided more funding certainty allowing us to take the opportunity to start remobilising earlier than planned in Quarter 3. We have now recruited additional labour and have undertaken advance procurement of materials. Surveys have been completed for Oxford Circus station and Hainault depot, and delivery began in April 2023. We have also reached contract award for scoping surveys of King's Cross St Pancras station in readiness for starting site delivery in Quarter 3 2023/24. Conversion of lighting at smaller stations is being delivered internally, with a new team mobilised to deliver 20 priority stations during 2023/24.



We are upgrading lighting in stations across our network

Enhancements

Forecast completion	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
2022/23 to 2027/28	544	89	633	585	(48)
Change since last Investment programme report					
No change	(9)	33	24	(70)	

Financial commentary

With the approval of the Programme and Investment Committee, the portfolio has released the programme and project authority and costs on a number of completed projects. In addition, we have received notification that the capacity increase and step-free access schemes at Colindale and Leyton stations have been provisionally awarded funding from the Government's Levelling Up Fund. These schemes have been added to the EFC for this report and the shortfall in authority will be addressed in future papers.

Performance over time commentary

The enhancements portfolio has delivered over £3m of cost efficiencies in 2022/23, exceeding our target at the start of the year of £1.4m. We expect to continue to apply learning from previous projects and benchmarking against organisations in similar sectors to drive more savings in future periods.

Programme update

The enhancements programme covers a range of improvement projects, mainly to stations and depots. We continue to improve stations by carrying out capacity upgrades and delivering projects that increase and improve accessibility and relieve congestion.

The programme had a very productive quarter underpinned by the announcement in January that, following the submission of a compelling and comprehensive bid, the GLA was successful in securing (subject to approval of a full business case by the Department for Transport) £43m from the Government's Levelling Up Fund to deliver station enhancements, including step-free access at Colindale and Leyton stations.

All schemes in delivery continued to make meaningful progress, as well achieving significant milestones on a new third-party funded opportunity at Stratford where site activity has begun.

Work is progressing well to determine the future priorities for step-free access following the publication of the results of our consultation in November; feasibility activity is expected to start in Quarter 2 2023/24. Our draft Business Plan, published on 7 December 2022, illustrates the importance of step-free access, and includes support for such schemes, while recognising that to maximise value it is necessary to target locations that also attract third-party funding.

Step-free access

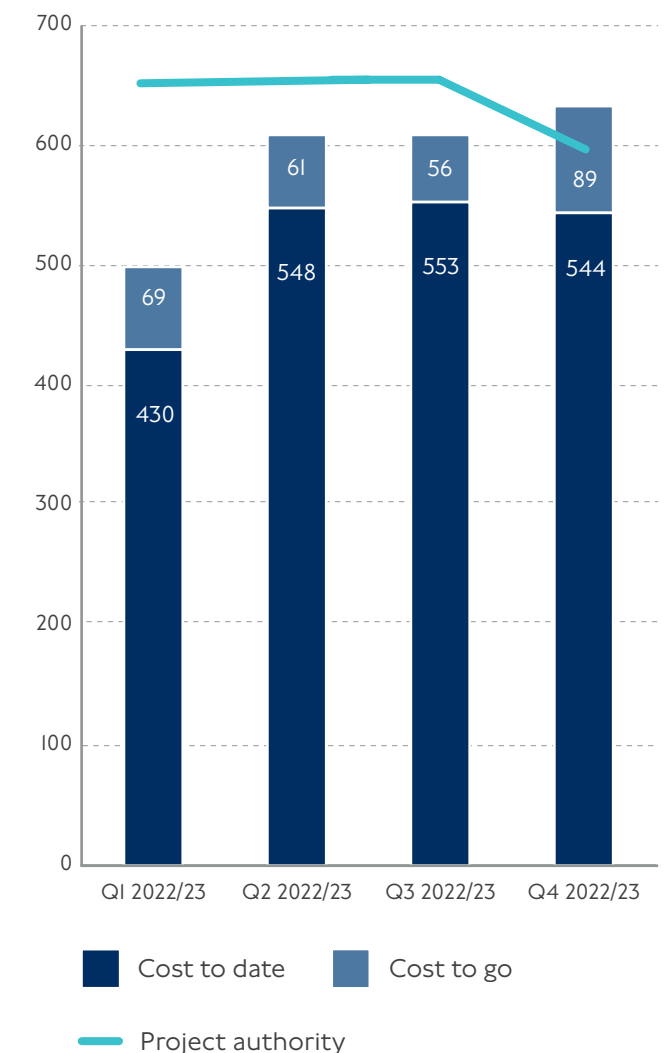
We have secured third-party funding to support the design of an improved step-free scheme at Hounslow West station and delivery of additional step-free access to King's Cross St Pancras station on the south side of Euston Road.

Following the publication of our step-free access consultation, we are continuing the process to develop a prioritised list of stations to undertake feasibility and design for potential step-free options. This accounts for the results of the consultation as well as funding considerations and complexity of schemes. This feasibility work will be delivered during 2023/24.

Tottenham Hale

The project has completed snagging. Financial close remains on target, due in Quarter 2 2023/24.

Enhancements performance over time (£m)



Paddington – Bakerloo line

The project continues to progress installation of services and finishes for the new ticket hall and step-free access areas. Challenges integrating the old and new station elements have resulted in some further work being required. Opening to customers is expected in the second half of 2023 with the unveiling of step-free access to the Bakerloo line.

Colindale

Following the announcement in January that the GLA was successful in securing funding from the Government's Levelling Up Fund, we are undertaking a refresh of the project's business case for approval by the Department for Transport to make this agreement unconditional. We are undertaking updates to the programme and closure requirements, and the associated pre-construction and internal governance processes, ahead of getting project authority to proceed with letting the construction contract. Work is programmed to commence on site in early 2024.

Hounslow West

In December 2022, the London Borough of Hounslow resolved to grant planning consent for a new 100 per cent affordable housing development on the site of the station car parks. However, the TTL Properties development partner subsequently withdrew from the scheme; this was formalised in March 2023. TTL Properties is seeking a new partner. In the meantime, work is continuing to finalise a funding agreement with the borough to allow the further development of the work to improve step-free access at the station.

King's Cross St Pancras

A developer-led concept design has been received and is under review by the London Underground team. The developer has undertaken the demolition of the existing Belgrove House to ground slab level. All required ground monitoring is in place. Mace has been appointed principal contractor by the developer and preparation for the construction of the new London Underground station entrance is ongoing.

Knightsbridge

Due to an unforeseen requirement to re-design a critical civils package, the programme for remaining works is being reviewed. The project team is working collaboratively to mitigate the impact of this delay through early procurement and optimising design assurance reviews to bring critical site works forward.

Leyton

Following the announcement in January that the GLA was successful in securing funding from the Government's Levelling Up Fund, we are undertaking a refresh of the project's business case for approval by the Department for Transport to make this agreement unconditional. The concept design has been accepted on time and to budget, and subsequently Stage Gate 3 approved. Contract award for detailed design with early contractor involvement to deliver a construction ready scheme will be let in Quarter 2 2023/24 with planned completion by Quarter 4 2023/24.



We are working with the borough to deliver new housing in Hounslow



Our plans to develop London Bridge station will ease congestion

London Bridge

We are working with a third-party developer, Great Portland Estates, to open a new Borough High Street entrance. This would result in reduced journey times and congestion at street level, especially on Borough High Street itself. The project is currently awaiting the outcome of a planning inquiry related to the developer's planning application, the announcement for which is expected by August 2023. In the meantime, negotiations are ongoing with the developer regarding the preparation of a development agreement.

West Ham

We are working with a third-party developer, Berkeley Homes, to deliver a new ticket hall to serve the Twelve Trees Park housing development, comprising 3,847 units delivered in four phases. The main construction works associated with the new entrance are progressing well, with the construction of the bridge deck completed and the superstructure to begin being erected in June 2023, as the third-party schedule has slipped. Hoardings were erected in April 2023 to allow the removal of the glass block wall that separates the Jubilee line upper concourse with the new ticket hall deck.

Waterloo

We are continuing detailed discussions with the developer to progress agreements to ensure step-free access to the Northern line platforms is secured before the re-development of Elizabeth House is completed. This would involve constructing lift shaft structures and connections to the northbound platforms during the progression of the development works. This will enable the future fit-out of the lift shafts after the development, subject to future affordability.

Stratford

Detailed design of the new southwestern entrance has been completed and Pathway Gate 4a was successfully passed in February 2023. The construction stage contractor has been appointed and enabling works have begun, with main construction continuing throughout 2023/24.

The scheme is a collaborative venture between the London Legacy Development Corporation, the London Borough of Newham and the GLA, which are fully funding the capital works.

We continue to coordinate with Network Rail, which will be delivering, owning and maintaining a new customer lift that will connect the Jubilee line concourse to the western subway, providing step-free access to the other platforms in the rest of the station. This will allow the removal of the existing platform lift from the stairs leading to the subway, which will reduce congestion in the station and improve reliability. This work is scheduled for completion in late 2023.

Acton warehouse

Service diversions and roof panel removals have been completed and the building structure demolition began in March 2023. This demolition is due to be completed within Quarter I of 2023/24.

Substation ventilation

The substation programme has now seen 17 substations fully upgraded and brought into service. The focus for the delivery team is now the tranche 3A works (four sites), where progress has slowed at Shepherd's Bush, Victoria and Notting Hill Gate, due to supplier issues. The delivery team is now considering options to resolve this. The tranche 3B (4 sites) works at Bouverie Place and Barons Court continue to make good progress, with design and planned implementation works at an advanced stage.



Technology

Forecast completion	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: EFC versus authority (£m)
2022/23 to 2027/28	35	174	209	226	17
Change since last Investment programme report					
No change	17	(11)	6	No change	

Financial commentary

In common with other portfolios, our current renewals funding is insufficient to deliver all the required work to maintain service performance. Ongoing asset prioritisation will be used to identify the most critical work to progress.

Technology delivered £35m this quarter; £17m increase on the last quarter. The variance between programme and project authority and EFC is £17m reflecting historical authority for this programme. A new programme and project authority will be presented later this year. Forecast cost has reduced £6m since the last report primarily due to stations and securities programme works ending.

Performance over time commentary

The portfolio has met budget in the quarter with an investment of £17m, including accelerated spend for Connect radio handsets and additional installation of critical incident management systems at several stations enabling us to better respond to incidents on our network. The programme has achieved the strategic

milestone of delivery of critical incident management at 100 stations. Improved performance reviews are helping to drive better confidence in our delivery and the portfolio is well positioned to deliver to budget in the coming financial year.

The infrastructure renewals programme five-year forecast remained constant in Quarters 1 and 2 reflecting a pre-prioritisation view of total work bank. Quarters 3 and 4, however, reflect a £103m reduction as post-prioritisation funding constraints are embedded.

Programme update

Our technology assets include a network-wide radio system and data network, as well as all the software to manage our assets and operate the network. The London Underground technology programme is a rolling annualised programme, consisting predominantly of renewals works, with projects added each year based on prioritisation of business needs. To improve the planning and delivery of our technology investment, we are now working towards combining the London

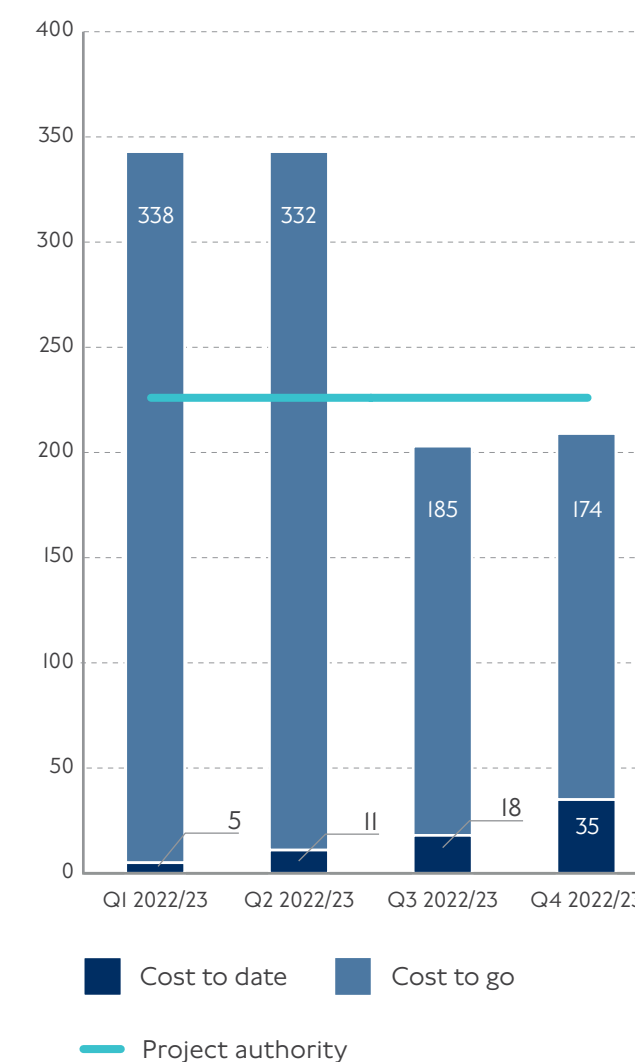
Underground technology programme with other technology-related investment programmes across TfL, meaning we will have one consolidated portfolio for all our organisation's investment in this area.

Networks and connectivity

We are continuing to work well with our suppliers to upgrade key components of our Connect radio system, focusing now on rolling out new radio hardware base stations. We have replaced key hardware at 276 of the required 293 locations and met our strategic milestone for this financial year in November, enabling the Connect system to continue to function into the 2030s. We are now approaching the final stages of this project and are focussing efforts on the long-term future of our operational networks by renewing our core data networks across London Underground.

We have also delivered critical incident management systems at a total of 101 stations. This range of improvements enables us to effectively manage these stations during a critical incident and other key events. We are continuing to roll out this important safety functionality alongside other improvements to our CCTV estate and plan to complete all works by early 2025.

Technology performance over time (£m)



Surface transport

This comprises Healthy Streets, air quality, asset investment, public transport and surface technology



Healthy Streets

Reporting period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: Forecast vs authority (£m)
2020/21 to 2024/25	386	359	744	738	(6)
Change since last Investment programme report					
No change	54	(51)	2	207	

Financial commentary

The five-year forecast from 2020/21 to 2024/25 has increased by £2m since the last report to align with the latest cost profiles and phasing of Healthy Streets projects. The forecast is above authority by £6m which reflects plans on third-party funded projects. Additional programme and project authority will be requested at the October 2023 Programme and Investment Committee, to cover associated gross expenditure.

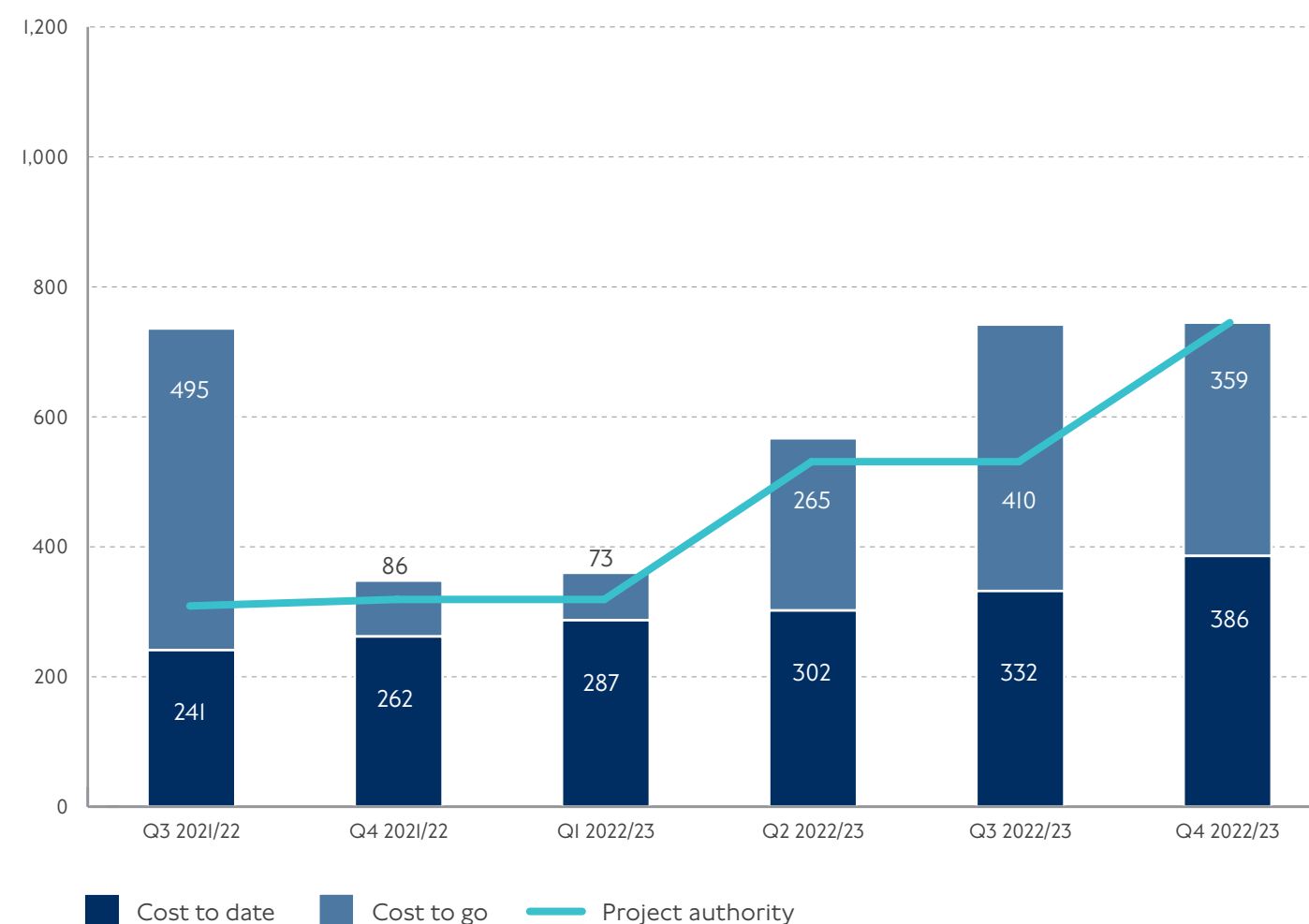
Our capital programme is in line with the funding settlement envelope agreed with Government over the two-year period for 2022/23 and 2023/24. This delivers our committed projects, with additional scope for capital renewals and active travel enabled by the funding agreement. We will continue to provide funding to London boroughs for investment in their streets, although this is accounted for as operating expenditure. The total investment in safe and active travel, across both operating and capital expenditure, is an average of £150m per year across our Business Plan 2022/23 to 2025/26.

Performance over time commentary

Following the Government funding settlement and TfL board agreement of the 2022/23 to 2025/26 Business Plan, investment in Healthy Streets has increased over the last three quarters. This includes continued investment in and commitment to deliver the walking and cycling, bus priority and safety-related action plans.

The programme and project authority has increased by £207m, following approval at the March 2023 Programmes and Investment Committee meeting. The approval now covers forecasted commitments to March 2025.

Estimated final cost performance over time (£m)



Programme update

The Healthy Streets programme continues to reduce road danger in line with the Vision Zero action plan, as well as making it easier to walk, cycle and travel by bus across London. It will also accelerate progress towards mode shift, decarbonisation, economic recovery and tackling health inequalities.

Recent highlights across the programme include the completion of monitoring to inform TfL decisions on the future of more temporary or experimental schemes installed as part of London's response to the coronavirus pandemic. This has resulted in work starting at Borough High Street to replace the temporary blue barriers with a trial of semi-permanent materials.

In March construction of a new segregated cycleways between Kew Bridge and Waterman's Park and around Lea Bridge Roundabout began. At the end of March, a new 20mph speed limit came into force in the London boroughs of Camden, Islington, Hackney, Tower Hamlets and Haringey on more than 28km of our roads; and the final infrastructure changes for the 24-hour bus lane scheme were completed, including the permanent removal of over 150 parking bays from bus lanes on our roads.

We have now allocated more than £63m in funding for London's boroughs in 2023/24, with more to follow in 2024/25. Local Implementation Plan funding will support London boroughs to deliver new cycle routes, School Streets schemes, new or upgraded pedestrian crossings, bus priority schemes and 20mph speed limits on borough roads. The allocations will allow London boroughs to progress a number of proposals.

These include:

- Junction and corridor improvement schemes to make London's streets safer, better for active travel and more reliable for buses
- Five Liveable Neighbourhood schemes in Holborn (Camden), West Ealing (Ealing), Enfield Town (Enfield), Greenwich town centre (Royal Borough of Greenwich) and Coppermill Village (Waltham Forest)
- More than 150 proposals for new or upgraded pedestrian crossings
- Cycle training for more than 20,000 adults and 40,000 children
- More than 3,500 secure residential cycle parking spaces

Specifically in outer London, this funding will help deliver a range of improvements to help support more active travel and the expansion of the Ultra Low Emission Zone across London on 29 August 2023. These include working with London boroughs to introduce more 20mph speed limits on their road networks, as well as continuing a rollout of School Streets across Barking, Brent, Ealing, Hounslow, Redbridge, Richmond, and Waltham Forest, and more than 50 feasibility schemes for new cycle routes.

Old Street Roundabout

Construction has continued on the highway works on the four approach arms to the junction, including the infilling of subway 3 on the southwestern side of the junction. Carriageway resurfacing was completed in April and commissioning of the new traffic signals was successfully undertaken in May.



Healthy Streets projects are a major part of our work

Building work to the superstructure for the new main station entrance continues, with the green roof and glazing works substantially complete and internal fit-out under way. Works are progressing elsewhere in the peninsula area with installation of new sustainable drainage systems and hostile vehicle mitigation bollards.

Works to the existing roof structure have continued, with installation of the external steelwork for the clerestory building completed and cladding works now under way. Construction of the new passenger and goods lifts have been completed ahead of standalone testing in the September.

Refurbishment of the subsurface concourse area continues, with installation of new mechanical, electrical and communications equipment. Installation of new shop fronts for the retail units and fire doors is now planned for October. The power supply to the new switch-room to enable testing, commissioning and handover of the new assets was successfully completed in early April.

As well as the green roof for the main station entrance, the project is promoting other environmental initiatives with sustainable drainage systems installed in the disused subways for which there is a £155k funding contribution from Thames Water. Last year the site became diesel-free so all plant and machinery is now battery and electricity powered.

Cycleway 4 London Bridge to Greenwich

The London Borough of Southwark is continuing to construct the temporary scheme for Lower Road between Rotherhithe Roundabout and Surrey Quays Road, which will complete the final section

of a protected cycling route between London Bridge and New Charlton.

Cycleway 9 East Kensington Olympia to Brentford

Works to improve cycle safety on Chiswick High Road between Chiswick Lane and Heathfield Terrace were completed on 16 February and the cycleway reopened for use.

Works to deliver a new segregated cycleway between Kew Bridge and Waterman's Park started on 27 March.

Cycleway 23 Lea Bridge to Dalston

Construction of segregated cycleways around Lea Bridge Roundabout began on 13 March. The design for Lea Bridge Road is under way and is being undertaken by the London Borough of Hackney.

Cycleway 37 Mile End to Westferry Lane

Work to deliver the permanent scheme at Mile End Road junction was due to begin in February but the London Borough of Tower Hamlets does not agree with elements of the proposals and consequently has not signed a section 8 agreement permitting the works. Discussions are under way again with the borough but until this is resolved, construction is delayed. The deliverability of the remaining sections including the temporary-to-permanent scheme on Burdett Road is being reviewed.

Cycleway 50 Finsbury Park to Tottenham Hale

Construction of the section on our roads from Caledonian Road to Finsbury Park started on 20 February. Works are under way on two sections of this route at Isledon Road and Parkhurst Road.

Developing the future active travel programme

The Department for Transport's active travel fund has now delivered more than 25km of new or improved cycling infrastructure. London boroughs worked tirelessly to deliver ambitious schemes within short timescales, significantly expanding London's cycle network. Building on the success of the programme, expansion of the cycle network will continue across London via the borough cycling programme with £15m of improvements to be delivered in 2023/24.

Temporary schemes that were delivered during the coronavirus pandemic under experimental traffic orders continue to be reviewed and made permanent where appropriate. This includes works in January 2023 to convert the Borough High Street scheme from temporary blue barriers to semi-permanent footway build-outs, to provide additional space for pedestrians.

Lowering speed limits

Lowering the speed of vehicles in London is key to reducing both the likelihood of a collision occurring and the severity of the outcome. The second phase of the programme is under way, and as detailed in the Vision Zero progress report published in 2021, aims to provide a 20mph speed limit on 220km of our roads by May 2024.

Raised pedestrian crossings will soon be introduced at eight locations in the boroughs of Westminster and Enfield to further reduce danger to people walking and increase compliance with the newly reduced speed limit, as well as introducing accessibility benefits for customers with reduced mobility.

A new 20mph speed limit came into force on over 28km of our roads on 31 March 2023, in the boroughs of Camden, Islington, Hackney, Tower Hamlets and Haringey. Over 142km of our roads are now subject to a 20mph speed limit.

In March 2023, we began local engagement on proposals to lower the speed limit to 20mph on sections of our roads in the boroughs of Kensington and Chelsea, Greenwich, Lewisham, Southwark, Lambeth, Wandsworth and Merton. Detailed design is now under way.

Concept design is under way to lower the speed limit to 20mph on selected roads in the boroughs of Wandsworth, Richmond, Sutton and Merton, and on the A312 Harlington Road in West Hounslow. A new 30mph speed limit is proposed on the A4 Great West Road in Hounslow. A new 40mph speed limit will also be introduced on A4 Bath Road in Hillingdon and on the A406 North Circular Road in Enfield and Waltham Forest. These projects are scheduled for delivery by March 2024 and account for almost 78km of our roads.

In February 2023, we published indicative results from monitoring of Phase I of the Lowering Speed Limits programme. Since a 20mph speed limit was introduced on the remaining TfL roads within the Congestion Charging Zone in March 2020, collisions have reduced by 25 per cent and collisions involving those walking, cycling or motorcycling have reduced by over a third. We plan to undertake further monitoring of personal injury collisions and vehicle speeds once post-implementation collision data is available for the full three-year monitoring period.



We have improved safety at 44 junctions across London

Safer Junctions

In April 2017, the Safer Junctions programme highlighted 73 of the most dangerous junctions on our roads, defined as those with the highest rate of collisions involving vulnerable road users. We have made improvements at 44 of these junctions.

Construction at the York Road Roundabout in Wandsworth was completed in May 2023, delivering safety improvements for motorcycle users. Construction on the junction of Holloway Road and Drayton Park began in late April 2023, delivering safety improvements for pedestrians with new and improved crossings, due for completion in May 2024.

Consultation on the second phase of improvements at the Battersea Bridge junction with Cheyne Walk closed in late January 2023. This scheme proposes new crossings on the remaining arms of the junction, as well as safety improvements for cyclists. We intend to publish the consultation report in late June.

We are committed to public engagement on potential changes to ten further junctions identified by the programme by the end of 2024.

Bus priority programme

Following the completion of an internal assessment process to identify potential new bus lane locations, our findings were shared with borough officers who have proposed schemes with the potential to deliver up to 30km of new bus lanes on their roads by March 2025.

Funding to develop these schemes has since been granted, and we are working with the relevant boroughs to develop these schemes in 2023/24.

These schemes will be progressed alongside new bus lane proposals on our roads, where we hope to introduce 4km of new bus lanes by March 2024. This is to meet the Government target of delivering 25km of new bus lanes by March 2025. Currently, 3.97km have been delivered across borough roads and our roads, and we are on target to deliver a total of 10km by March 2024.

In addition, we recently announced over £10m of funding for London boroughs to deliver enhanced bus priority on their local borough road networks. This funding will both support the bus lanes described above and, deliver other bus priority features such as new bus gates, the removal of pinch-points and changes to the operating hours of bus lanes.

In 2022/23 we reviewed signal timings at 495 sites and made signal-enabling upgrades at 57 sites to deliver improvements to bus journey times.

The final infrastructure changes for the 24-hour bus lane scheme have now been implemented. This includes the permanent removal of over 150 parking bays from bus lanes on our roads. These bays were originally suspended as part of the 24-hour bus lane experimental order in 2020 and have now been removed permanently from our roads, helping to improve bus progression and reliability.

Air quality

Reporting period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: Forecast vs authority (£m)
2020/21 to 2024/25	311	443	754	713	(41)
Change since last Investment programme report					
No change	43	(2)	40	254	

Financial commentary

The five-year forecast cost from 2020/21 to 2024/25 has increased by £40m since the last report. This is primarily due to the inclusion of the full forecast for investigation into a potential future Road User Charging scheme, which the Mayor asked us to begin exploring in March 2022; whereas the last report only included forecasts up to 2023/24. There has also been re-phasing within the portfolio after the go live date was changed from October 2025 to September 2026 to allow for re-let of contracts and delivery of the business operations system in-house.

The variance of £254m programme and project authority since the last report was approved at several Programmes and Investment Committee meetings: £170m on 14 December 2022 (Period I0); £77m on 1 March 2023 (Period I3); and £7.5m for DVS2 as part of Active Travel on 4 October 2022. The paper in October was approved under Healthy Streets and was transferred to Air Quality after the last report was published.

The £41m variance to forecast versus authority is due to programme and project authority only being sought for 2022/23

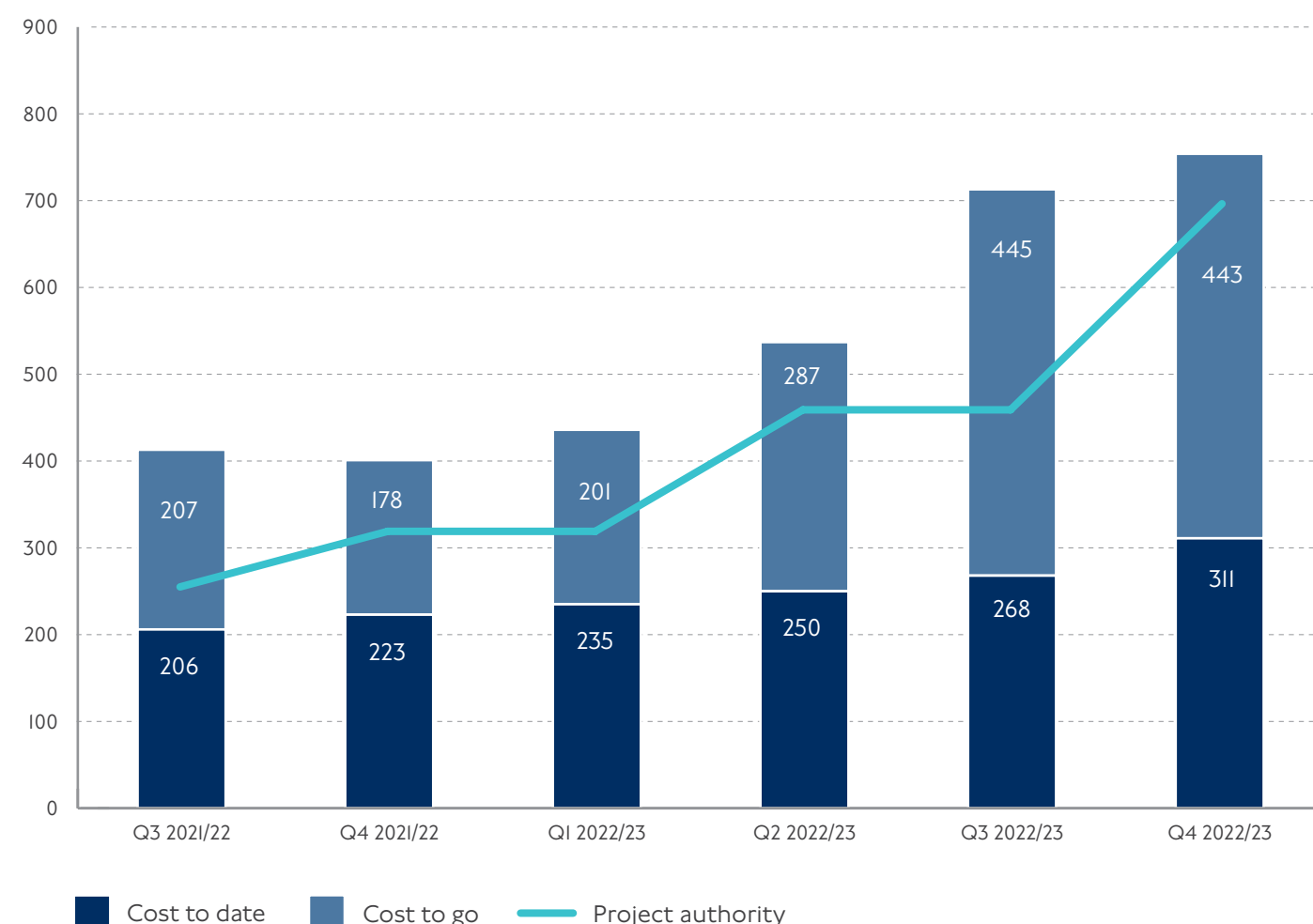
and future known commitments for Road User Charging schemes in 2024/25 whereas the forecast cost is to the end of 2024/25 for all known expenditure.

Performance over time commentary

Over the last six financial quarters, our forecast cost has fluctuated, driven by funding challenges brought about by the pandemic, which meant several projects had to be put on hold. However, since Quarter I 2022/23 and the funding agreement confirmed in August 2022, the position has improved. The costs associated with the London-wide ULEZ expansion in 2023, as well as the costs of the associated scrappage scheme, are now part of the portfolio forecast.

Since Period 6, the full forecast of a potential future Road User Charging scheme has been included and full allocation of renewals and road user charging schemes such as re-let of contracts and delivery of business operations systems in-house. A paper was approved by the Programmes and Investment Committee in December 2023 for £170m and March 2023 for £77m to increase the project and programme authority to address the above matters.

Estimated final cost performance over time (£m)



Programme update

Electric vehicle infrastructure delivery

It is expected that London will need between 40,000 and 60,000 electric vehicle charging points by 2030, including up to 4,000 rapid chargers. This infrastructure could help support a reduction of carbon dioxide emissions of between 1.5 and 2.6 million tonnes per year. The Mayor has committed to supporting the continued roll out of charging points alongside the private sector, to help meet exponential growth in demand and contribute towards achieving a net zero-carbon London by 2030.

The first tranche of our electric vehicle infrastructure delivery (EVID) programme will deliver rapid and ultra-rapid charging points across 100 parking bays on our roads. Following the release of the first sites to the market in November 2022, we have now completed the evaluation of bids from prospective suppliers. We signed our first contract with charge point operator (CPO) Zest in early May, to deliver an initial batch of 39 charging bays across 24 sites. This infrastructure will be delivered using a full 'turnkey' solution from the CPO.

We have now completed a preliminary assessment of 2,000 sites across the GLA estate and are planning to accelerate the release of more to the market, to tender all remaining tranche 1 sites by the end of June 2023. In addition, we have reviewed current assessment criteria, to bring forward new sites across TfL and wider GLA land, with active engagement with the London Fire Brigade, London Ambulance Service and the boroughs to identify opportunities. This wider pool of sites could help deliver the volume of charging infrastructure London requires, as set out in the electric vehicle infrastructure strategy by 2030.

In addition to the roll-out of rapid EV charging points through EVID, the Office of Zero Emission Vehicles (OZEV) has recently announced that London will receive £35.7m capital funding through the Department for Transport's Local Electric Vehicle Infrastructure (LEVI) fund. This will primarily be used to accelerate the delivery of low-powered charging infrastructure on borough highways, including for residents without access to off-street parking, and builds on the 400 fast-charging points that will be delivered by London boroughs by March 2024 using £9.7m of LEVI pilot funding and additional borough delivery funded by the government's On-street Residential Charge Point scheme.

Zero-emission bus fleet

Key to our journey to reaching net-zero carbon emissions across our operations is the work to transition our entire bus fleet of approximately 9,000 vehicles to zero carbon emissions by 2034. We now have more than 950 zero-emission buses in the fleet, with around a further 700 zero-emission buses on order with various manufacturers. We remain open to trialling new types of zero-emission technology, which includes hydrogen fuel cell and battery electric buses, which make up the largest proportion of the zero-emission bus fleet, and more recently 'opportunity charged' buses, which operate on route 132 in Bexleyheath. We currently have the largest electric bus fleet in western Europe.



We are installing new vehicle charging points at 100 sites on our roads

With financial support from Government, we could transition to a fully zero-emission bus fleet by 2030, but the window of opportunity to make this a reality is closing, given our bus contracts generally run for seven years. If we progress on this now, we can demonstrate the UK's leadership on tackling the climate and ecological emergency and make a significant difference to those living in, working in and visiting the capital.

Work continues on building electric bus charging infrastructure (using pantographs to deliver a quick, high-power charge) at either end of route 358 in Bromley. This will also see the introduction of 20 new single-deck buses combining innovative electric bus technology and enhanced customer features on board. The trial is expected to launch in early November this year. These new technologies are supporting the wider objective of converting the fleet to zero emissions no later than 2034; helping to tackle the climate emergency while supporting manufacturing, jobs and innovation.

Road User Charging

To help address London's polluted air and improve the health of people across the capital, the ULEZ is expanding London-wide to cover all London boroughs from 29 August 2023*. Modelling suggests this expansion will reduce the number of non-compliant cars each day from 160,000 to 46,000, and the number of non-compliant vans from 42,000 to 26,000. Overall, the scheme is forecast to lead to 146,000 fewer car trips (a reduction of nearly two per cent) and reduce London-wide road transport emissions

of nitric oxide and nitrogen dioxide by an estimated 5.4 per cent. This is equivalent to a 6.9 per cent reduction in outer London.

To assist with ULEZ expansion, on 30 January 2023, a new £110m vehicle scrappage and support scheme was launched, the largest of its kind. When launched, it provided support for Londoners on lower incomes, disabled Londoners, charities sole traders and businesses with ten or fewer employees to replace or retrofit their old polluting vehicles and make sustainable travel choices. At the beginning of June, the Mayor announced the expansion of the scheme to tens of thousands more Londoners, including those receiving child benefit and all small businesses registered in the capital with fewer than 50 employees, which will now be eligible for financial support to replace polluting vehicles from the end of July. Previously only businesses with up to ten staff could apply. The scrappage scheme will be kept under review and the Mayor has asked us to monitor applications from care workers to ensure they are able to benefit from the money available.

There are also new grace periods under the ULEZ scheme for sole traders, microbusinesses, small businesses and registered charities with non-compliant vehicles that have ordered new compliant ones but have been informed that delivery will be delayed until after the expanded zone has gone live, or which have booked an approved retrofit appointment for a non-compliant light van or minibus before that date.

Successful scrappage applicants receive a grant to scrap or retrofit their vans and minibuses. Successful car and motorcycle scrappage applicants can opt to receive a smaller grant accompanied by up to two free annual bus and tram passes, which would give them a higher value package. In addition, to further help disabled Londoners, there will also be two new grace periods under the ULEZ scheme that will allow the use of non-compliant vehicles, which will apply until October 2027. One is for recipients of certain disability benefits (or their nominated driver) and the other is for all wheelchair accessible vehicles and some vehicles with other adaptations. People must register for these grace periods and applications opened on 30 January.

The London-wide information campaign, launched in January 2023, is continuing to raise awareness of the ULEZ expansion on 29 August 2023, encouraging Londoners to check their vehicle and emphasising the health benefits of the scheme. We are also working with stakeholders including London and home counties boroughs, MPs and London Assembly Members, businesses, community groups and organisations representing disabled people, as well as a wide range of other Londoners to raise awareness of ULEZ expansion and the scrappage scheme. Letters to non-compliant vehicle drivers and door drop leafleting started in early May following local elections.

Installation of infrastructure to support the London-Wide ULEZ launch on 29 August 2023 is underway. Since 5 December 2022, 17 of 24 boroughs have signed agreements to give TfL consent to install enforcement

cameras (when not on TfL-operated traffic signals) and new Department for Transport authorised combined LEZ-ULEZ signage on their road networks. We have sought to install cameras and signs in the other seven boroughs using direct installation powers, subject to being granted the street works permits where required.

Installation has initially focused on TfL assets (such as traffic signals) and the TfL Road Network, where we are the highway authority. Up to 11 June 2023, we had installed 1,340 cameras, 994 on borough roads and 346 on our road network. We have also installed 1,252 signs, of which 769 are boundary signs inside the current zone. Installation of 152 advanced directional signs that give warning of impending entry into the Ultra Low Emission Zone began on 18 May and 633 new in-zone repeater signs which provide notification of camera enforcement are progressing.

Unfortunately, there have been reports of vandalism to a number of ULEZ cameras. All incidents are reported to the police and some arrests have been made. We are working closely with suppliers and the police to reduce the risk of further incidents.

We are preparing the London-wide ULEZ back-office system to ensure it can process the anticipated increase in data volumes from the additional vehicles in the expanded zone and the higher volume of associated transactions and enquiries expected. We have also started recruiting the additional contact centre agents needed, with recruitment due to complete at the end of June.

* The confirmation by the Mayor that the ULEZ will expand from 29 August 2023 and his approval of £110m funding for the vehicle scrappage and support scheme is the subject of a legal challenge in the High Court by four London borough councils (Bexley, Bromley, Harrow and Hillingdon) and Surrey County Council. The case will be heard on 4 and 5 July.

Direct Vision Standard Phase 2

Since March 2021 all Heavy Goods Vehicles (HGVs) over 12 tonnes have been required to obtain a safety permit to operate in London as part of the London HGV Safety Permit scheme. This scheme is safety-focused and contributes to the Mayor's Vision Zero strategy by improving HGV drivers' visibility, thereby reducing the risks HGVs present to vulnerable road users, and is run in partnership with the boroughs through the London Councils. Vehicles that did not meet the minimum one-star on the Direct Vision Standard (DVS) rating are required to fit additional 'safe system' safety measures to the vehicle, originally developed in 2017/18.

From 29 October 2024, the minimum rating to operate without fitting additional safety measures raises to three stars, marking the beginning of phase two of the scheme. A Consultation ran between 14 February and 3 April 2023 seeking views on the proposed Progressive Safe System (PSS). The PSS enhances the current safe system to reflect technological development since it was originally designed (London Councils approved the PSS and other Scheme changes in June 2023). The Scheme has been enforced since March 2021 by means of a penalty charge notice.

These PSS and other changes will build on the safety improvements from the current scheme, including the following outcomes and benefits published in the 'One Year On' report (June 2022):

- The number of fatal collisions involving an HGV where visibility was cited as a contributory factor has halved (from 12 in 2018, the year before the scheme was introduced to six in 2021). The number of serious injuries fell from 48 in 2017 to 17 in 2021
- The average daily compliance rates are very high, with more than 94 per cent of HGVs in London now operating with a Safety Permit and hauliers reporting that they are building DVS requirements into future purchasing decisions



Our Direct Vision Standard improves safety for vulnerable road users

Asset investment

Reporting period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: Forecast vs authority (£m)
2020/21 to 2024/25	334	234	568	494	(74)
Change since last Investment programme report					
No change	41	(41)	(1)	No change	

Financial commentary

The five-year cost forecast from 2020/21 to 2024/25 has remained stable since the last report. The current level of programme and project authority granted in May 2022 covers some but not all of the expected spend for 2024/25. A further increase of £109m for the period through to 2025/26 was approved at the Programme and Investment Committee meeting on 17 May 2023 taking programme and project authority up to £603m (to 2025/26) and £545m (to 2024/25). As the increase was approved in Quarter I of 2023/24. The new authority figure will be updated in the next report. The portfolio is actively seeking further funding from external sources, such as the Department for Transport's Major Road Network programme, to enable an acceleration of key renewal schemes like the Gallows Corner flyover and Brent Cross structures.

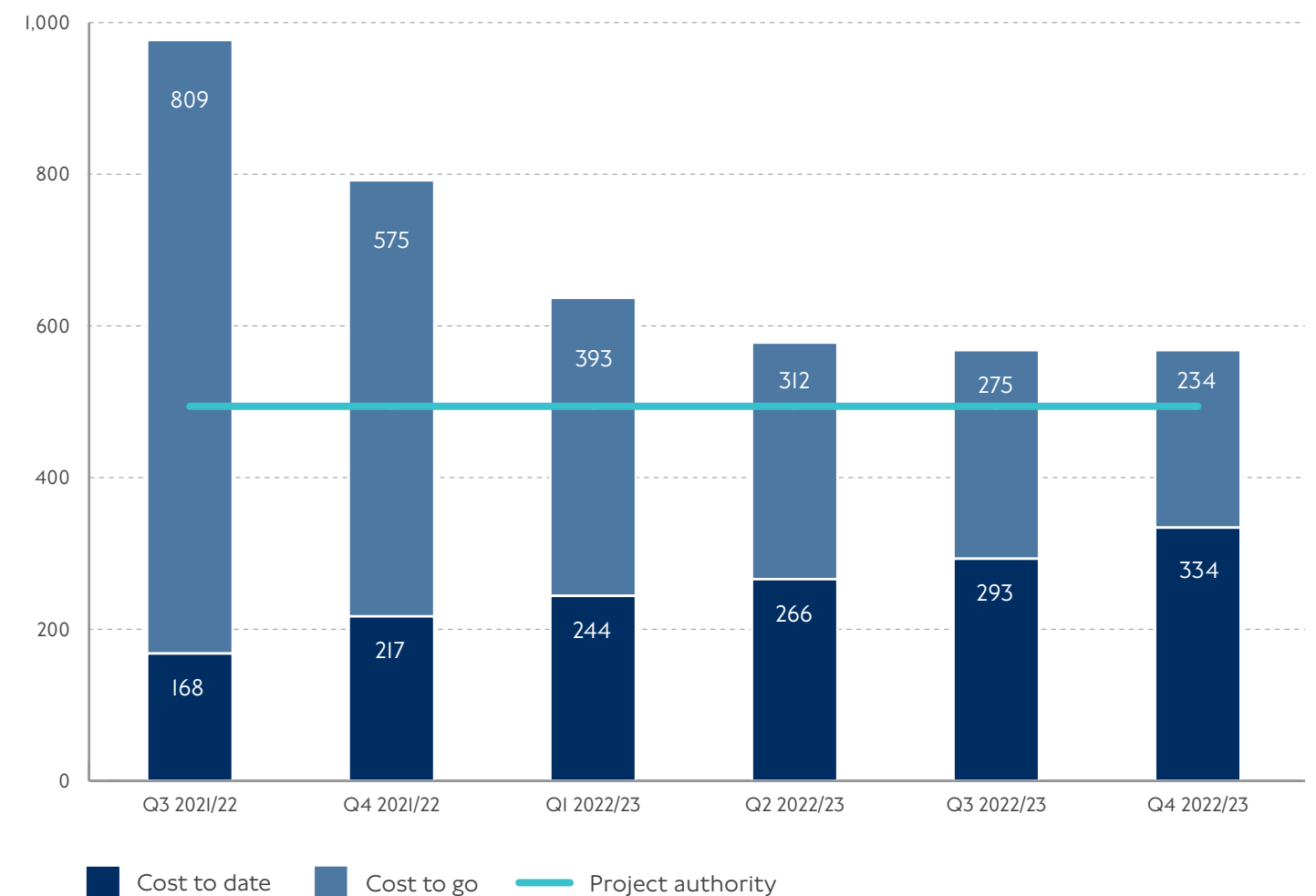
The asset investment portfolio has delivered £5.5m of cost reductions in 2022/23, as project teams found more efficient ways of working and gained increased value for money from suppliers. This represents an improvement on the savings found at this same stage of the previous financial year.

Also, the asset investment portfolio has delivered £5.5m of cost reductions so far this financial year, as project teams found more efficient ways of working and gained increased value for money from suppliers. This represents an improvement on the savings found at this same stage of the previous financial year.

Performance over time commentary

Over the last six financial quarters, our forecast cost has seen a general decreasing trend, driven by funding challenges following the coronavirus pandemic. This has resulted in several projects being deferred. An increase in programme and project authority to cover spend up to the end of 2025/26 was approved at the Programmes and Investment Committee meeting on 17 May 2023.

Estimated final cost performance over time (£m)



Programme update

Work is under way to ensure the safety and operability of our highest-priority assets requiring urgent renewals, including critical tunnels and structures.

Blackwall Tunnel southbound

The project aims to renew critical systems that support tunnel operation, including lighting, concrete repairs and CCTV. Following detailed modelling assessments, we have selected a preferred construction option: a series of weekend and night closures to minimise impacts on people and goods needing to cross the river.

We appointed Tarmac Kier JV as design and build contractor in April and we are on target to proceed to design and build stage. Subject to budgets and value for money, we plan to start the works from May 2024.

Gallows Corner

The Gallows Corner flyover in Romford is one of our highest-priority assets for renewal due to its age, condition and the current restrictions in place. Following the completion of design and feasibility work, we have selected a preferred option to fully refurbish and strengthen the flyover. We have briefed external stakeholders who are supportive of the selected option. The option selected has 30 per cent of the scheme carbon compared to the alternative of a full replacement.

The concept design using the existing foundations to support the new deck structure is nearing completion. A final version of the outline business case has been produced and was submitted to the Department for Transport in May 2023 for approval.

A40 Westway

Following successful completion of Work Package 1 (WPI) which consisted of the major joint replacement, the project is now focused on delivering the remaining scope and work packages. This includes further joint replacements, parapet renewals and repairs to concrete deterioration. The remaining scope has been prioritised and divided into further sub-packages based on asset risk to ensure it is affordable within current budget constraints.

Concept design work for the remaining elements has been completed and accepted by TfL. We are now in the process of awarding the first tranche of Work Package 2 (seven expansion joints) to the same contractors as WPI above. We have accepted the price and programme and notice to proceed will go out in late June 2023. We will also be progressing with the design of WP2B (three expansion joints) to establish the earliest opportunity to replace these remaining vital components. We will continue to progress WP2C (concrete repairs and other works) later subject to budget availability.



We are renewing critical systems in the Blackwall Tunnel



We are preparing a major safety overhaul of Rotherhithe Tunnel

Rotherhithe Tunnel

We have completed the design work and preparation of tender documents for the detailed design and build procurement stages of the refurbishment project. However, due to the need to retain sufficient cross-river travel opportunities while the works take place at the Blackwall Tunnel, the next nearest road crossing in the east, we now expect that the full refurbishment of Rotherhithe Tunnel will not take place until after the Silvertown Tunnel opens in 2025.

We are putting in place a series of short-term capital interventions to ensure the tunnel remains safe and operable until the main refurbishment project is progressed. We have completed procurement activity for some of the short-term capital interventions, including the fire main and tunnel lighting, and have awarded a contract to progress feasibility work. Investigations works are progressing. Options for delivery will be developed by September 2023 to inform decisions on the best value for money.

Hammersmith Bridge

We released our third of the share of the costs for the stabilisation works, which meant the London Borough of Hammersmith & Fulham started works earlier in 2022. We expect these works to be completed by the end of June 2023. Alongside the Department for Transport, we continue to support the borough in developing a business case for the longer-term strengthening works.

Carriageway renewal

Following the early delivery of 130,000 square metres of carriageway resurfacing in December 2022, we provided additional funds to stretch the delivery output. Over 30 carriageway schemes were delivered with an output of 218,000 square metres. Although road space approvals were in place, the adverse weather in Quarter 4 2022/23 resulted in four schemes being deferred to 2023/24. In addition to the build schemes, 40 preliminary designs and 28 detailed designs were completed in 2022/23, enabling delivery in the new financial year to start at pace and ensure that a successful first quarter.

Public transport

Reporting period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: Forecast vs authority (£m)
2020/21 to 2024/25	203	252	454	283	(171)
Change since last Investment programme report					
No change	33	(43)	(12)	No change	

Financial commentary

The £171m variance to forecast versus authority is due to programme and project authority only being sought up to 2023/24 and for future known commitments, whereas the forecast cost is to the end of 2024/25 for all known expenditure. There is no change to the programme and project authority approved in the July 2022 Programmes and Investment Committee submission.

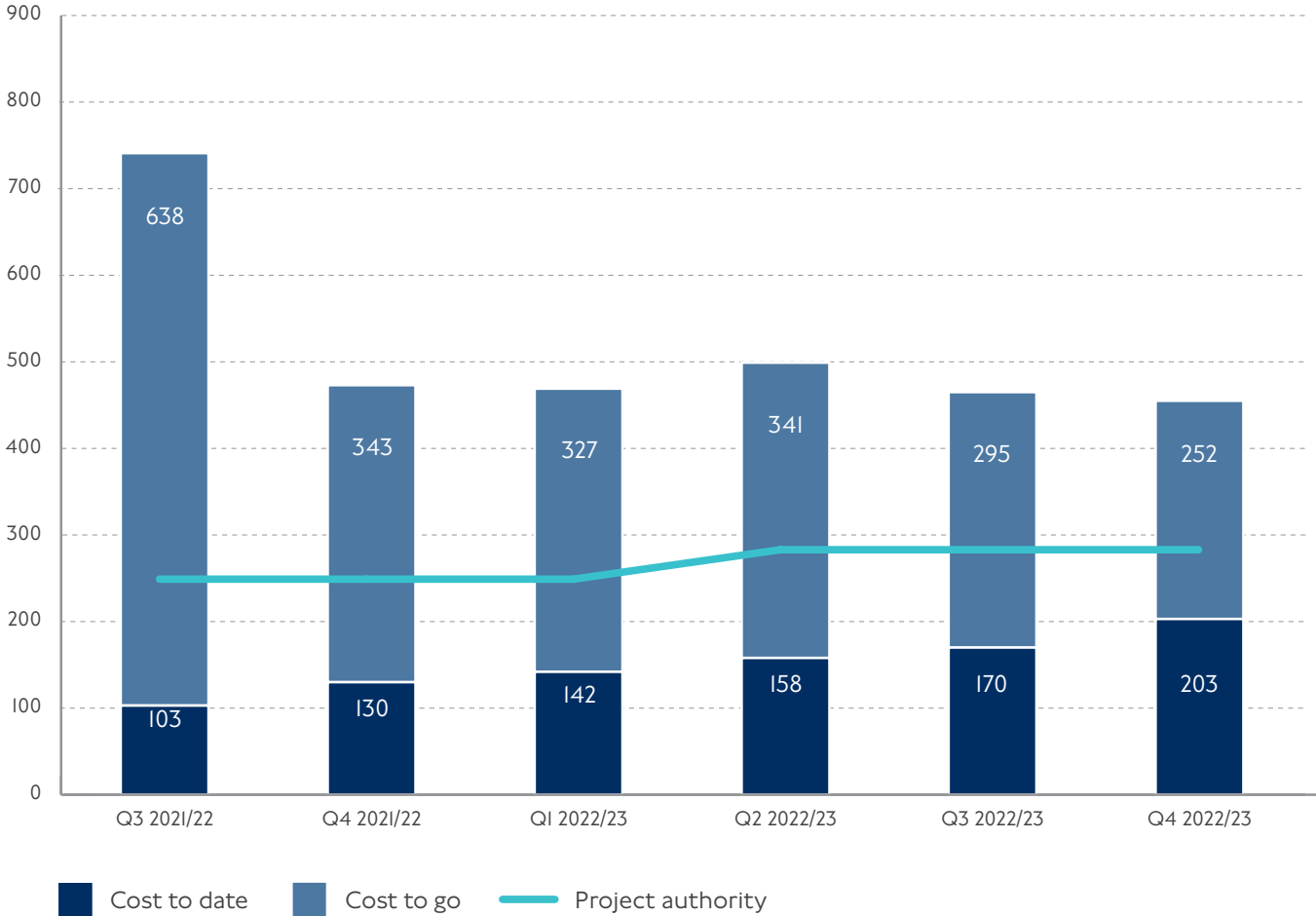
The five-year cost forecast from 2020/21 to 2024/25 has decreased by £12m since the last report, to align with the 2023/24 renewal asset prioritisation and the delivery across enhancement projects including third-party initiatives.

The Quarter 4 forecast reflects a decrease of £8m for renewal delivery, which includes £4m of efficiency savings delivered across the portfolio in 2022/23. The upcoming 2023/24 reduction in outturn is aligned with the strategic exercise to prioritise assets across TfL to ensure all our assets including the rail network remain safe and reliable.

In addition, delayed mobilisation defers £5.9m into future years for the DLR Royal Docks and Royal Victoria station upgrades, due to ongoing discussions to agree funding of scope. This enhancement programme is aligned with the emerging aspirations of the Royal Docks and Beckton Riverside Opportunity Area Planning Framework, aimed at improving accessibility and reducing congestion to enable the delivery of an additional 3,000 homes.

The Surrey Quays station upgrade workstream, part of the East London line Housing Infrastructure Fund programme, reflects the updated supplier programme following contract award in December 2022, with £1m moved into 2025/26. The Bus customer action plan has released £1.9m related to operational activity. The above is offset by accelerating other priority schemes and savings achieved.

Estimated final cost performance over time (£m)





Page 78

We are improving step-free access on London Overground

Performance over time Commentary

Over the last six financial quarters, our forecast expenditure has seen a general decreasing trend, driven by funding challenges as a result of the coronavirus pandemic. This has led to several projects being deferred.

Programme update London Overground

Funded by the Government's housing and infrastructure programme and contributions relating to section 106 planning obligations, we are providing enhancements at Surrey Quays London Overground station, including a new station entrance and step-free access along with power and signal upgrades to enable more frequent services, which will support more housing and economic growth.

Morgan Sindal has now been appointed contractor for the detailed design and delivery of the works at Surrey Quays station and early works began in May 2023 with completion expected in 2026. The detailed design is progressing well, with site surveys and investigations under way and planning permission secured in January 2023. We are undertaking procurement for the delivery of the signalling power upgrade works which are expected to start later in 2023.

Class 710 trains

Manufacturer Alstom has delivered 51 of 54 Class 710 trains to London Overground. The next train is expected to be accepted in Quarter 1 2023/24, but the last two will be further delayed into Quarter 2 2023/24 because of persisting material shortages for rectification of build-quality defects.

London Overground renewals

Renewals delivery has been accelerated during the last quarter with contractual commitments of around £800,000 agreed. Works delivery in the last quarter has included successful implementation of the telephone switching upgrade and the lineside and station supervisory control and data acquisitions renewals, both of which were carried out during an extended closure of the East London line during the weekend of 18 to 19 March. The lift renewals have also been completed; the final lift was completed on 6 April. The stabilisation works and new mess room facilities at Stamford Hill station have also been completed, enabling the station to be returned to full operational use.

Notable updates on the complex renewal schemes include:

- Reconfiguration of operational building complex accommodation was completed on site as planned in March
- Renewal of the East London line signalling control system received authority to award the contract for its design and build
- Authority was granted to award the supply of materials to replace over 3,000 track baseplates in the Thames Tunnel; work is ongoing to secure possession access over the 2023 Christmas period to undertake this vital renewal work
- Software build for the Class 378 train cab simulator renewal continues to progress to plan, with implementation forecast for November 2023

DLR

Procurement activities for the renewal portfolio continue, with priority given to critical and safety-related projects. The team, including our contractors, continues to assess the impact of price rises and the availability of materials such as steel and other resources in the current volatile market. Retaining key staff is a concern, with several engineers having left the business this period.

The replacement bogie frame project for the B92 train type is progressing well. Wheel slip protection trials have been completed. Software installation has not occurred yet but is planned on all 110 train units.

High-voltage projects were impacted by the UK Power Networks (UKPN) substation fire at Poplar in March 2022, meaning UKPN completion of power supply has been delayed until December 2023, requiring some key projects to be re-programmed so as not to impact services. The Poplar transformer has been installed successfully and is now in service. Six of eight substation battery chargers have been replaced.

Long line public address system installation has begun at three stations. This system is used for station announcements, which are essential for evacuations as the majority of DLR stations are unstaffed.

Automatic people counters at 26 stations have also been installed and commissioned into service across the network.

Canary Wharf and Heron Quays low-voltage renewals have started works on site after designs approval. We will replace old lighting with new LED fittings and expect to see significant drops in our consequent power usage at these key stations. Issues have arisen with the suspended ceiling at Canary Wharf requiring replacement, which the contractor is assisting with Canary Wharf management to resolve.

Designs have been submitted for platform resurfacing to make sure the following stations are compliant with slip-resistance standards: All Saints, Royal Albery and Prince Regent. Works have been completed successfully and earlier than planned at Limehouse Arch, this spanned over the canal, which required working closely with Canal and River Trust.

All planned tack fixing works have been completed with over 8000 baseplates renewed over three years. Switch and crossings renewal of three point ends outside Beckton depot on the mainline was completed in one weekend possession, with innovative delivery methods by the contractor and DLR Projects teams meaning work that normally would have taken four days was completed in two. We also completed re-railing between Canning Town and Star Lane during engineering hours with nearly 1km of rail replaced.

The lift system upgrade project continues to make good progress. Works have started on lift 29 out of a planned 30. Escalators at Cutty Sark and Tower Gateway stations return to service following refurbishment this period. South Quays escalator refurbishment has begun.



Modernisation of the DLR will bring safety improvements

The GLA-funded Royal Docks stations programme has completed concept design for capacity enhancements at Pontoon Dock. We are undertaking a value-engineering study to bring down increased costs during Quarter 1. We have completed a feasibility design for a new station at Thames Wharf and are now assessing value-engineering options before feasibility concludes. We have completed concept design for Royal Victoria station and are reviewing the cost estimate for detailed design and build.

London Trams

Our rolling stock replacement programme will replace the life-expired Bombardier CR4000 trams, which are experiencing declining reliability and have one of the lowest states of good repair categorisations across our fleets. Early market engagement is complete, which has informed the procurement strategy. It was confirmed at our internal Investment Group meeting that replacement of the CR4000 trams is the preferred option; however, full funding for replacement of the trams, alongside our other rolling stock, has not yet been confirmed.

Initial assessments of infrastructure requirements to facilitate a new fleet have also been completed, which have informed the overall programme update.

Installation work for both the wayside and on-tram upgrades to communications equipment was paused in December 2021 so that the project team could investigate and rectify an increase in the number of communication faults, which are affecting the reliability of tram operations. Wayside site installation works are now complete, and we have begun deployment of a correct-side door enabling system on the Bombardier CR4000 trams.

Our renewals programme continues across five asset groups: rolling stock, power, civils, systems, and permanent way infrastructure.

The first phase of the Mitcham to Mitcham Junction ballasted track renewal was completed as planned during a 10-day part closure of the tramway from 4 to 12 April 2022. The second phase was delivered during another 10-day part-closure of the tramway from 22 August to 1 September 2022. The final phase was delivered during a planned 12-day closure from 8 to 20 February 2023. We are currently reviewing opportunities available to complete Mitcham to Mitcham Junction follow-up tamping and drainage works and Wimbledon rerailing during an eight-day closure from 5 August 2023.

The tender process for a new framework contract for embedded track renewals was concluded in June 2022, and the contract was awarded in August 2022. The original plan was to deliver Church Street track renewal as the first package under this contract in October 2022; however, this was completed in April 2023 owing to delays for materials with a longer procurement lead-time to delivery.

We completed site investigations to replace the retaining wall and step-free access ramp at Birkbeck tram stop, as a result of which an updated design is required. The delivery contract is in place but on hold until design is complete. Works are due to start on site in Quarter 2 2023/24. This is to allow for an additional utilities survey to take place to facilitate lowering of shallow services by the utility companies, and for the contractor to adequately protect mature trees within the worksite.

Following detailed investigations and assessment of asset condition, we accepted the recommendation to proceed with replacing the underframe of Tram 2547 (Bombardier type tram) and instructed Alstom to proceed with the works to return the tram to service in August 2023. Factory inspection of the centre casting at prototype stage was approved on 22 February which will enable Alstom to progress the manufacture process.

In May 2022, we awarded a contract to start planned works to replace fire doors at the London Trams depot and ensure compliance with current fire safety standards. However, due to supplier delays, works only started in February 2023.

In June 2022, we concluded the tender process to refurbish key components of the CR4000 Bombardier tram fleet (flooring, doors and rooftop), and awarded the contract in August 2022.

The passenger information display on the Stadler Variobahn Trams was replaced in December 2022 and is now in use.

Woolwich Ferry (London River Services)

The Woolwich Ferry resilience and renewals programme is made up of schemes spread across several disciplines, which are all currently at various stages of the project delivery lifecycle.

The key aim of these schemes is to reduce operating expenses, maximising use of assets and exploiting opportunities to generate additional revenue where possible. Projects in the resilience and renewals work bank support the delivery of the Woolwich Ferry business strategy, improve operational safety and make services more reliable.

The key focus over the last few periods has been planning and preparing for the blockade delivery which took place late between late February and March. This included the critical delivery of the guiderails plate repairs, welfare unit upgrades, north terminal road works and resurfacing works at both south and north viaduct roads. We successfully delivered these works as per the programme and services were able to start running earlier than publicly announced by two days (opening on 6 March rather than 8 March).

Additionally, the past few periods have been focused on confirming the schemes to be delivered in the financial year 2023/24 including budget allocation for these. This has involved the delivery team working together with the Woolwich Ferry and Asset Investment teams to prioritise schemes based on necessity and delivery confidence. High-priority schemes highlighted as critical for delivery in 2023/24 include the dry-docking and refit of the vessels and the linkspan maintenance works. Other schemes still in development but also raised as priorities include the linkspan and maintenance shed refurbishment, south layby berth and auto-mooring system reviews.

We have awarded the contract for the linkspan renewal and maintenance and mobilisation will now start. The vessel dry-docking scope definition has been completed and these works are now out to tender with dry docking planned for Quarter 4 2023/24.



We are working to improve performance of the Woolwich Ferry

Technology

Reporting period	Gross cost to date (£m)	Gross cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: Forecast vs authority (£m)
2020/21 to 2024/25	85	148	233	173	(60)
Change since last Investment programme report					
No change	12	(15)	(3)	No change	

Financial commentary

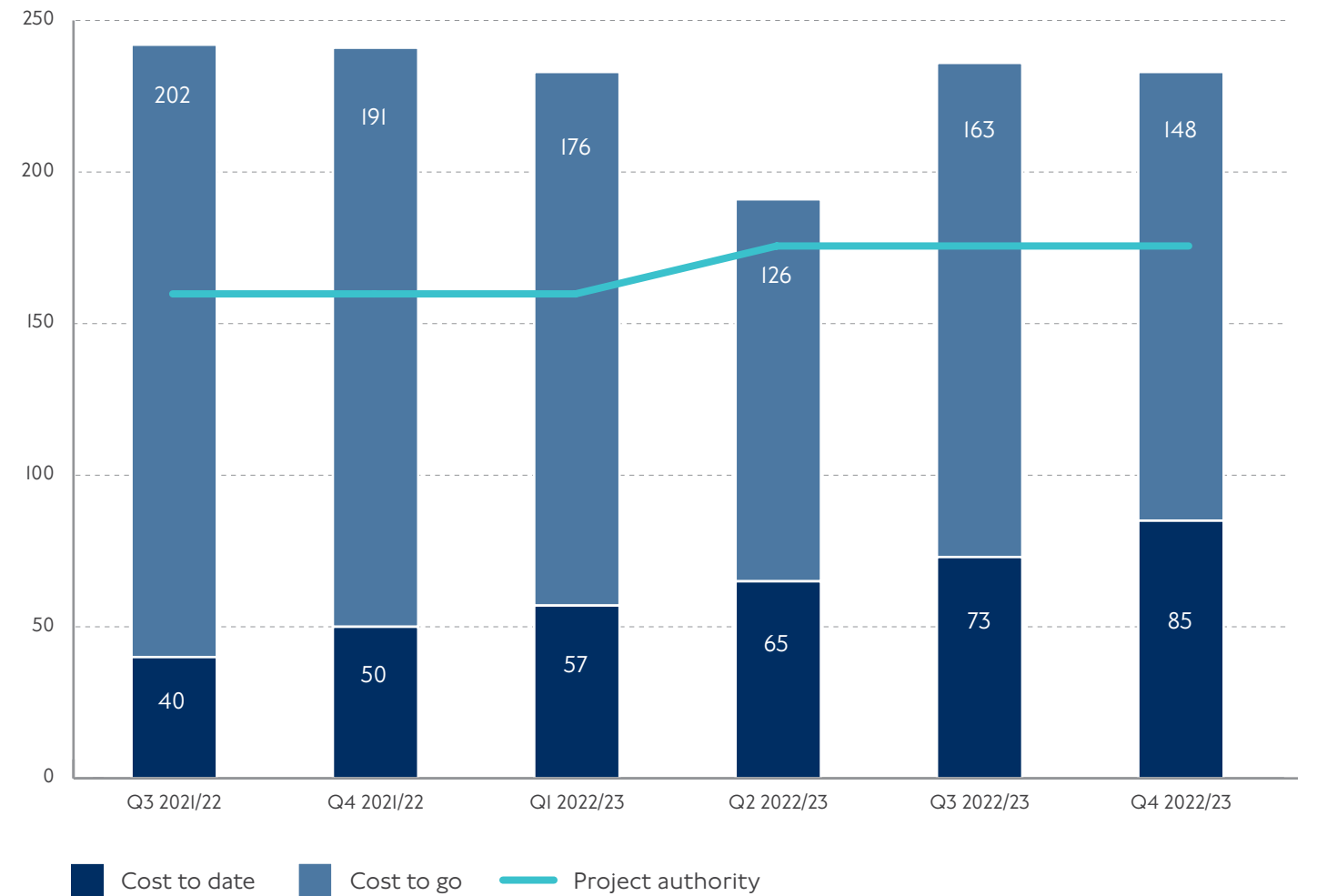
The five-year forecast for 2020/21 to 2024/25 has reduced by £3m since the last report. This is primarily due to re-phasing across the portfolio in line with the prioritisation exercise which was finalised in January 2023.

The £60m variance to forecast versus authority is due to programme and project authority only being sought for 2022/23 and future known commitments in subsequent years, whereas the forecast cost is to the end of 2024/25 for all known expenditure.

Performance over time commentary

Over the last four quarters, forecast spend for surface technology was significantly reduced to reflect our ongoing funding constraints. This meant that only the enhancements required to secure legal compliance or future financial sustainability could be progressed. However, since Quarter 2 2022/23 and finalisation of the Business Plan 2022/23 to 2025/26, and the overall renewals funding of £725m approved in January 2023, many projects have re-mobilised allowing the portfolio to be able to continue to meet contractual, safety and legal obligations. Further programme and project authority is being sought at the July Programmes and Investment Committee which will address the shortfall of £60m through to 2024/25.

Estimated final cost performance over time (£m)



Programme updates

Compliance, enforcement and safety technology

We are continuing to progress the roll-out of deployable enforcement cameras on our road network. These cameras enable us to target specific safety and non-compliance hotspots and are expected to make a significant contribution to helping us meet our Vision Zero goal. They are currently operational at 43 high-priority locations, selected on the basis of their recent safety and compliance records and have already resulted in more than 50,000 penalty charge notices being issued. We are now closely monitoring changes in driver behaviour and road safety, with early indications suggesting that the cameras have already delivered significant benefits with improved compliance at multiple sites. To build on this early success we have begun a second phase of camera installations, aiming to further expand their use across London. We have already identified sites for a number of cameras to be installed in 2023/24 and have started site enablement work and installations. We expect this to result in the delivery of an additional 265 sites by April 2024.

Any money recovered from the penalty charge notices will be reinvested into maintaining a safe and efficient road network for everyone travelling in the capital. The cameras are used for enforcement of civil traffic rules only and are fully compliant with data protection legislation.

As part of delivering the workplace violence and aggression strategy, the operational staff safety programme has rolled out an additional 200 body worn video cameras to staff across TfL and significant progress has been made to roll out 500 emergency communication devices by the end of 2023.

Road technology

We are leading the way in delivering innovative new road management systems. These are delivered within the surface intelligent transport systems programme and will enable a multi-modal approach to managing the road network. The programme continues to deliver the two core replacement systems, including the real-time optimiser to manage traffic lights more effectively, and the common operating view incident management system to enable more effective management of incidents. These systems will reduce delay and improve journey times. Both projects are prioritised as operationally critical renewals.

In February 2023, we completed all the code required for the final release of Phase I (R6) of the common operating view incident management system, achieving the tier 2 milestone.

We continue to receive positive feedback on the system from users.

We will complete core development of the real-time optimiser system in 2023 will begin migration to live operation of the system in Quarter 4 2023/24. Further enhancements to the system are planned for 2024.

Two further elements of the surface intelligent programme were paused last year but have been reinitiated with an aim to formally start in the new financial year (2023/24). The first of these elements is predictive, which aims to forecast the impact of an incident to improve response times and reduce delays; the second is video analytics, which will provide improved real-time modal data on road use across London.

Public transport technology

We are maintaining and developing technology to operate our public transport networks and improve the customer experience. This includes upgrading the critical technology systems that underpin the bus network, such as the iBus system, which provides real-time information on bus locations. The tender process to select suppliers for the iBus2 software replacement project is progressing.

The past few months have concluded the competitive dialogue for iBus2 with the invitation to submit final tenders issued in February. Our focus has been on responding to requests for clarification from the bidders following their review of the documentation. The clarification period is now closed and we have begun evaluation of supplier bids.

Procurement has progressed for the new Countdown 3 system. Recent changes to the strategy have meant that suppliers are able to respond with an option to replace the entire asset if this proves better value for money. The selection questionnaire was released to market on 14 April with all responses received by 30 May. The evaluation period has now begun alongside business case development to appraise the best option ahead of contract award in January 2024. Feedback on new sign types was sought from the Independent Disability Advisory Group (IDAG) on 20 April. The IDAG feedback was positive as we had engaged ahead of contract award and they provided various considerations to make the displays more accessible. A visually impaired member of IDAG will be assigned to work closely with us on the project, to review the Equality Impact Assessment and the alternative screen types to help inform the contract award recommendation.

Procurement has progressed for a replacement booking and scheduling system for Dial-a-Ride, which will give passengers the option to book online and enable us to deliver more trips with the same number of vehicles. We invited shortlisted bidders to submit final tender in April 2022. Following this, we have selected a preferred bidder and the contract has now been signed. Delivery began in March 2023.

Micromobility

The London e-scooter rental trial has been operating for more than 19 months, with 10 participating London boroughs making up a continuous trial area. In the period ending 12 March 2023, 70,000 trips were made with a total fleet size of 4,490 vehicles. This brings the total to 2.3 million trips for the trial to date. In response to recently updated Department for Transport guidance that allows e-scooter trials across the UK to run until 31 May 2024, we launched a competitive procurement to select operators for the next phase of the London trial. The current contracts with operators Dott, Lime and TIER were extended to continue services until this procurement is complete.

In the 2022 Queen's speech, the Government proposed legislation to legalise e-scooters and grant powers to strategic authorities to manage rental operations for micromobility. Although the timing of this regulation is uncertain, we continue to advocate for this legislation to enable us, working closely with London councils and boroughs, to apply the same approach we have taken with e-scooter rental to all micromobility rental services in London, specifying standards and how operations should work in London, including parking.

Santander Cycles

Over the last 12 months, the Cycle Hire scheme has seen 10.8m hires take place. This was the third busiest financial year for hires. It was supported by the delivery of the modernise, electrify, expand programme, which saw the launch of a new back-office system, 500 e-bikes and seven new docking stations in the London Borough of Southwark. E-bikes have surpassed 250,000 hires and are being used twice as regularly as classic Santander bikes.

Preparation is under way to procure a new operating contract for the Santander Cycles scheme, as the existing contracts expire from 2025. A prior information notice was issued in April 2023.



Santander Cycles has undergone significant modernisation this year

Professional services

This comprises Technology and data, media and the TfL Growth Fund



Technology and data

Reporting period	Gross cost to date (£m)	Gross cost to go (£m)	Forecast cost (£m)	Programme and project authority (£m)	Variance: Forecast vs authority (£m)
2020/21 to 2023/24	238	104	341	359	18
Change since last Investment programme report					
No change	44	(43)	No change	No change	

Financial commentary

The programme and project authority and forecast figures shown are for financial years 2020/21 to 2023/24 and include additional authority approved by the Programmes and Investment Committee on 2 March 2022. There has been no overall change to the forecast cost since Quarter 3.

The values are for technology and data-funded projects only and exclude the emergency services network, the public cellular network, telecoms commercialisation projects and work to expand pay as you go.

The forecast to authority variance is predominantly due to the outcome of capital prioritisation and reflects savings and deferrals out of the time-frame.

Performance over time commentary

Costs have remained stable this quarter.

Progress update

Payments

In January, we withdrew the last of the legacy passenger ticket inspection devices. These devices were created specifically for crew-operated buses when Oyster was introduced and more recently have been used to facilitate using Oyster to pay for some leisure cruises operated on the River Thames. Following the withdrawal of Routemaster operated bus services, we withdrew the devices completely to reduce the complexity created by small numbers of legacy assets being used to support the revenue collection system.

On 27 February we successfully implemented an upgrade to the payment gateway that supports Oyster online. This was an essential upgrade without which, from April this year, we would have been unable to process payments for season tickets or Oyster top-ups made either through the website or the mobile app. This upgrade was also an essential precursor to placing multi-factor authentication into the log-in processes for Oyster and contactless customer accounts, which went live on 15 May 2023.

Digital workplace

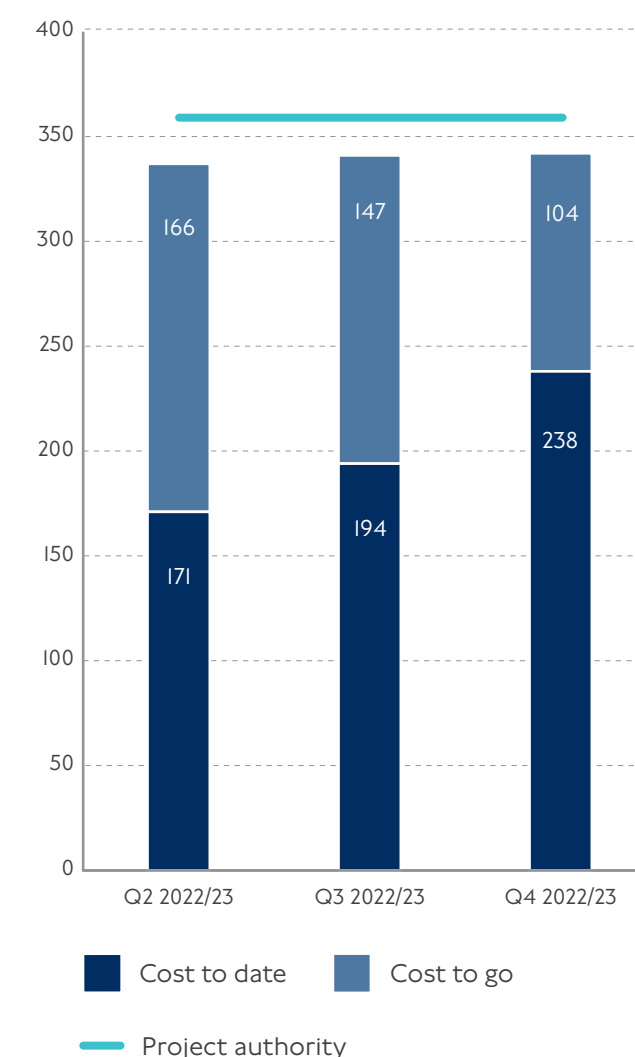
We have formally notified the market of our intention to tender key telephony services during Quarter 1 of 2023/24. These services consist of:

- Telephony maintenance and support, comprising all fixed telephony services and components across TfL
- Modernisation of the operational telephony estate, used primarily by London Underground

We have upgraded the auditorium facilities at Endeavour Square with new audio-visual technology, allowing the facilities to either operate as three separate smaller auditoriums, or to be combined as one large auditorium. This will be our flagship auditorium facility, to be used for both internal and external events. Included within this modernisation initiative is an enhanced support service, which ensures that events hosted within the auditorium always have a dedicated support engineer available.

We have implemented a suite of compliance and reporting tools covering Microsoft PowerApps across our estate. These tools provide complete visibility of all PowerApps activity across TfL and help ensure that new PowerApps are routed through appropriate governance and compliance controls, covering areas such as GDPR, safety and service criticality. This implementation is a foundational step in our evolving Power Platform strategy, which will be progressed throughout 2023/24.

Technology and data performance over time (£m)



Initial environmental benchmarking has been completed for end user computing and hosting devices. This work has been undertaken in partnership with a specialist third party and is our starting point for continuing to measure and report on carbon output, and ultimately help inform strategic decision making to support improved sustainability. Further work in this area will be undertaken throughout 2023/24.

Hosting

We have transitioned our end-of-life management process from a project to a business-as-usual activity run by our operations team. At the start of this project 66 per cent of Technology and Data's operating systems and database platforms used to host applications were end-of-life and were no longer supported by the manufacturer. The objectives of this project were to:

- Uplift and/or re-platform our most complex business critical services to supported operating systems and database platforms
- Eliminate security vulnerabilities in business-critical applications due to upgrades not having taken place
- Create an operating model, processes, and procedures for this to be run as a continuous business as usual activity

This objective has now been achieved and the risk has been reduced significantly. A continuous lifecycle management process will now run in business as usual to mitigate the remaining risk.

Networks

The work to extend mobile coverage beyond the initial Jubilee line pilot area is progressing well, with the first new coverage areas comprising three stations and connecting tunnels on the Central and Northern lines. The first stations and tunnels in this service expansion went live on the 21 and 22 December 2022 with three of the operators (3UK, EE and Vodafone). O2 was added to the network in March 2023 together with the addition of 5G to tunnels and stations for all operators. As station and tunnel builds are completed, further phases will go live on the Northern and Central lines and further significant additions will be added throughout 2023.

We continue to work closely with the Home Office in the delivery of the emergency services network, and we are ahead of schedule to deliver service. The Home Office continues to categorise the London Underground coverage project as green.

The connect programme continues to replace London Underground's operational radio base stations. This two-year project has now replaced more than 277 of 293 (95 per cent) of our base stations, including all 140 locations with an emergency services (Airwave) radio base station.

Our project to replace the end-of-life data network services that underpin virtually all surface services continues to progress. To date, we have migrated 3,914 of 4,427 (88 per cent) sites to the new network delivered by Capita. Of these 3,914 sites, 318 are currently operating on an interim 4G-based solution.



We are upgrading business critical operating systems

Technology services operations

Our projects to help maintain and protect our business-critical services are progressing well. Of note is the progress being made in modernising our IT monitoring systems, with the key workstream to upgrade monitoring of operating systems now complete. This project continues to improve our monitoring capability through 2023, to minimise any operational impact to technology services and performance. For ongoing provision of our internal IT service management system, we have decided we are able to stay with the current solution in the short-term, while we further review all options on the market. This assessment and procurement activity will continue through this year. A new TfL internal-facing project that we are also embarking on is to agree the IT operating model with our commercial property team.

In our role as a central part of the GLA family, we are also continuing through 2023/24 with the strategic initiative for the GLA IT shared service programme, which will see us assume responsibility for agreed IT systems and services for the GLA, the Mayor's Office for Policing and Crime, and the Old Oak and Park Royal Development Corporation. The plan for this year is to begin the phased roll-out of our IT services to all their staff. We have also been asked to undertake a similar initiative this year for the London Legacy Development Corporation, for which we are now mobilising.

Enterprise resource planning

Our new procurement and commercial system for purchasing (SAP Ariba) went live with guided buying across our 3,000 purchasers at the end of January 2023. Feedback on the system has been positive and the implementation has highlighted necessary improvements in our business data which over time continued use of the new system will resolve.

We are replacing our legacy HR SAP solution (for which support ends in 2027) by implementing further modules of SAP SuccessFactors, which we call MyJourney.

Phase 2 of MyJourney is now under way. The scope of the project is in two tranches. First, we will replace our core HR system of record and payroll solution, followed by a second tranche that will cover recruitment and onboarding. The project team alongside our delivery partner, Infosys, have completed the Discovery workshops which has identified the core requirements and the areas where we operate our HR processes differently across the organisation. The next step is to review these and decide how we design the solution. The milestone plan is to have the new HR and payroll system in place by Quarter 4 2023/24.

The next key stage of the transformation programme is the upgrade of our core SAP system to the latest version SAP S/4 HANA. The programme team with our client-side partner, Resulting IT, have run several process workshops with key stakeholders and subject matter experts across Finance, Procurement, HR, and Operations. These have identified the strengths and weaknesses of our process compliance and how we manage and use our data. All this information enables us to take the next step, which is to determine the scope and delivery approach for the S/4 HANA upgrade. In parallel, we have issued a market tender prior information notice to suppliers and will be inviting 50 firms to attend a supplier day to promote our programme and the opportunity. This will culminate with a market tender for S/4 HANA implementation services in Quarter 3 2023/24.

Contact centre operations

Following the historic delivery of a successful outsourcing roadmap, reducing our cost to serve by more than £3m per annum, we have now replaced the outsourcing framework that facilitated this saving. The previous framework expired last year. A replacement was required before the existing call off contracts expire to continue to leverage the per annum saving, to provide service continuity to the outsourced contracts currently live and to provide a commercial vehicle to outsource any additional work. Following market engagement, evaluation of bids from the market and taking the contract award recommendation through governance our new framework is now live.

In addition to providing this critical continuity of service to customers, we have also replaced and improved technology. In our lost property office, we have replaced Sherlock, the primary system used to catalogue items of lost property. This tool was out of support for more than a decade, and functionality limitations prevented us from modernising our processes. Following last year's successful tender of the new tool, we have worked closely with the supplier, NotLost, to ensure the product is suitably rolled out to all operational areas. We have gone live in the lost property office and for our larger modes of transport, including but not limited to London Buses and London Underground.

Data analytics

We have kickstarted our strategy work with a series data maturity assessments across TfL using a newly published single government maturity model as a framework. This will help us connect our data communities across TfL to recognise areas of success and good practice, identify areas that need additional support and spot new initiatives to consider. The outcome of the data maturity assessments will be our ability to track improvements in our data maturity over time.

We have taken a prototype of a bus deployment planner component within ITAP (our irregular travel pattern platform) and have made this a production component. The bus deployment planner detects cards which have error taps on buses, to help demonstrate when and where fare evasion is happening on the network. This will now allow colleagues in our fare evasion teams to target deployments using data insights.

Finally, we have also transitioned our re-platformed ODX (Origin Destination Interchange, which combines bus location and ticketing data to estimate where people using our bus network alight) into business as usual, which now ensures that users of this data have a stable platform to help inform business decisions.

Digital

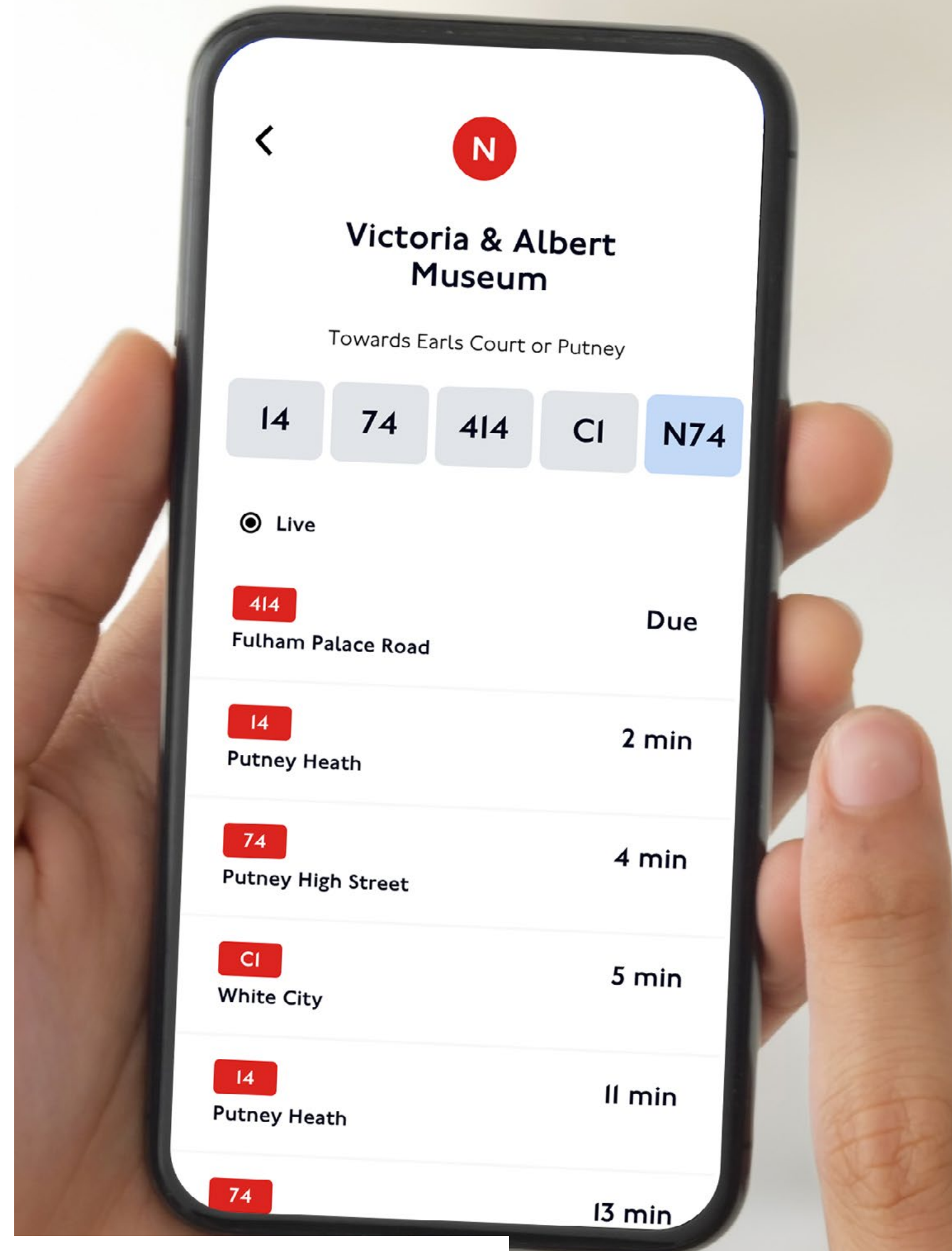
The TfL Go app has now been downloaded over 3.4 million times and was used by just over 601,000 customers in February 2023, up 5.5 per cent on the previous month.

We have continued to release regular app updates, with an imminent release of fares in Journey Planner and enhancements to the live Tube map. In early March we upgraded the Journey Planner engine so that it uses live bus arrival times rather than scheduled times. A similar enhancement for live Tube journeys will follow. In February we published 'promoted places' content featuring things to do in London during the half-term break. We have also begun work on notifications so that we can warn customers in advance about network disruption.

We continue to prepare for the launch of integrated payments functionality and development work is now complete. However, launch is dependent on the rollout of the new account platform and work to correctly attribute payment activity between the apps. The plan is to still to first test internally, then widen access to up to 10,000 customers in a beta trial.

Challenges

Global semi-conductor supply issues have distorted our delivery due to long lead times and pricing that increases at short notice. This has impacted our ability to procure and implement new IT infrastructure and resulted in increased project costs. We have put mitigations in place for our known pipeline and live projects in the networks transformation programme; however, we are still exposed to risk on ad-hoc, small works or emergency works.



Our TfL Go app has been downloaded over 3.4 million times

Professional services Growth Fund

Reporting period	Forecast £m
2020/21 to 2029/30	37
Change since last IPR report at P3 22/23	
No change	No change

Financial commentary

The forecast for the Growth Fund is unchanged this quarter. During the Business Plan process, additional funding was identified and prioritised for the Growth Fund and this is reflected in the forecast. This money is profiled between 2024/25 and 2026/27 and will be allocated to specific Growth Fund projects over the coming months.

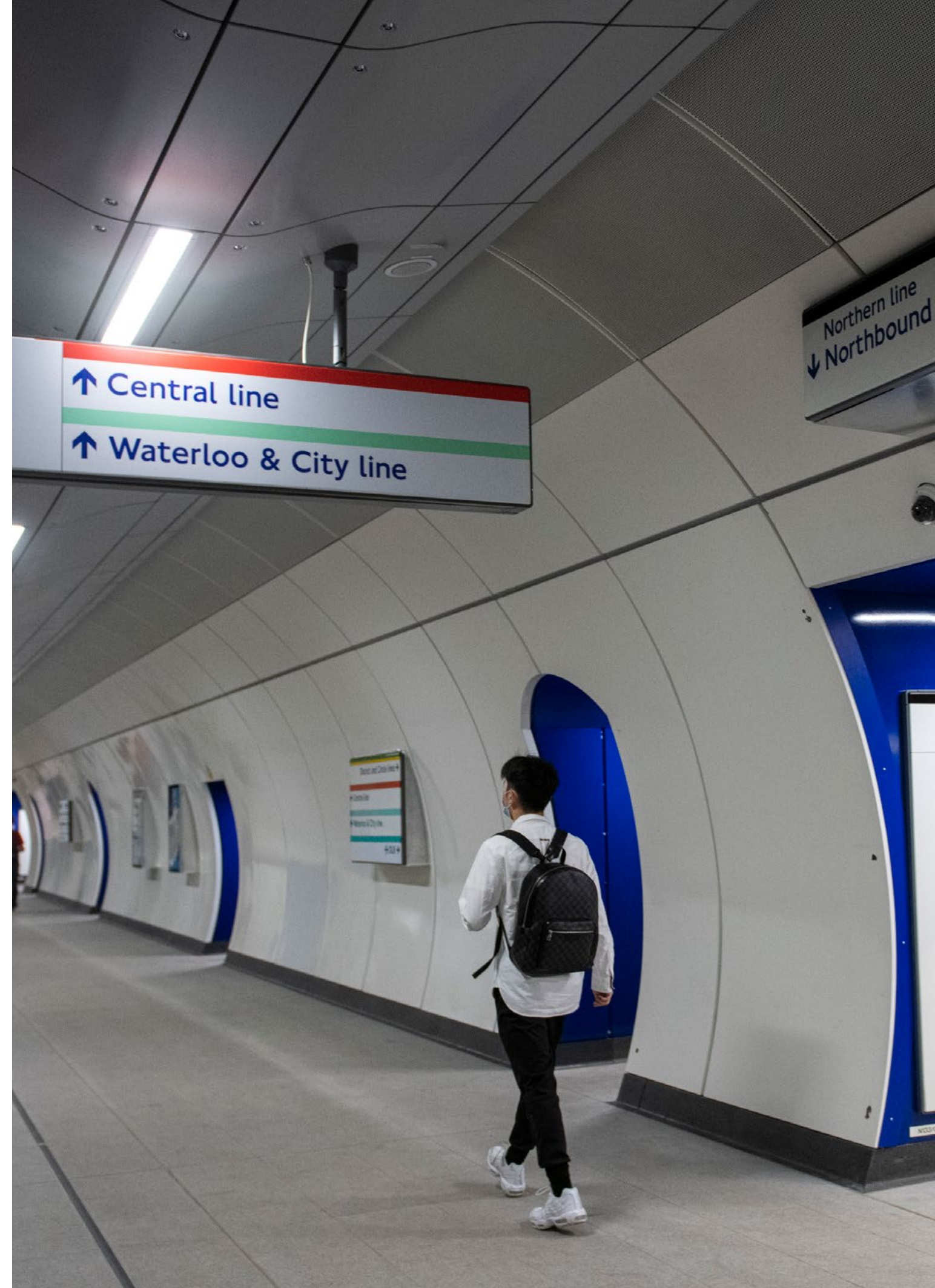
Programme update

Over the past two years we have not been able to proceed with Growth Fund schemes as they have been contingent on additional funding being made available. Following the funding deal with Government, the 2022/23 Business Plan has recognised the need for us to continue to leverage third-party income and to support growth and step-free access projects in London. The Tolworth scheme remains in the Growth Fund budget as a commitment.

Challenges

The main challenges continue to centre around ongoing funding uncertainty for third-party funded projects, which are necessary to deliver the Mayor's Transport Strategy outcomes in areas of development and high need in London. Several projects with previously complete funding packages are currently at risk due to the programme being reliant on additional funding.

As a result, a number of projects have been delayed or paused in anticipation of funding certainty, while there have been attempts over the last couple of months to secure alternative funding contributions for some critically urgent projects.

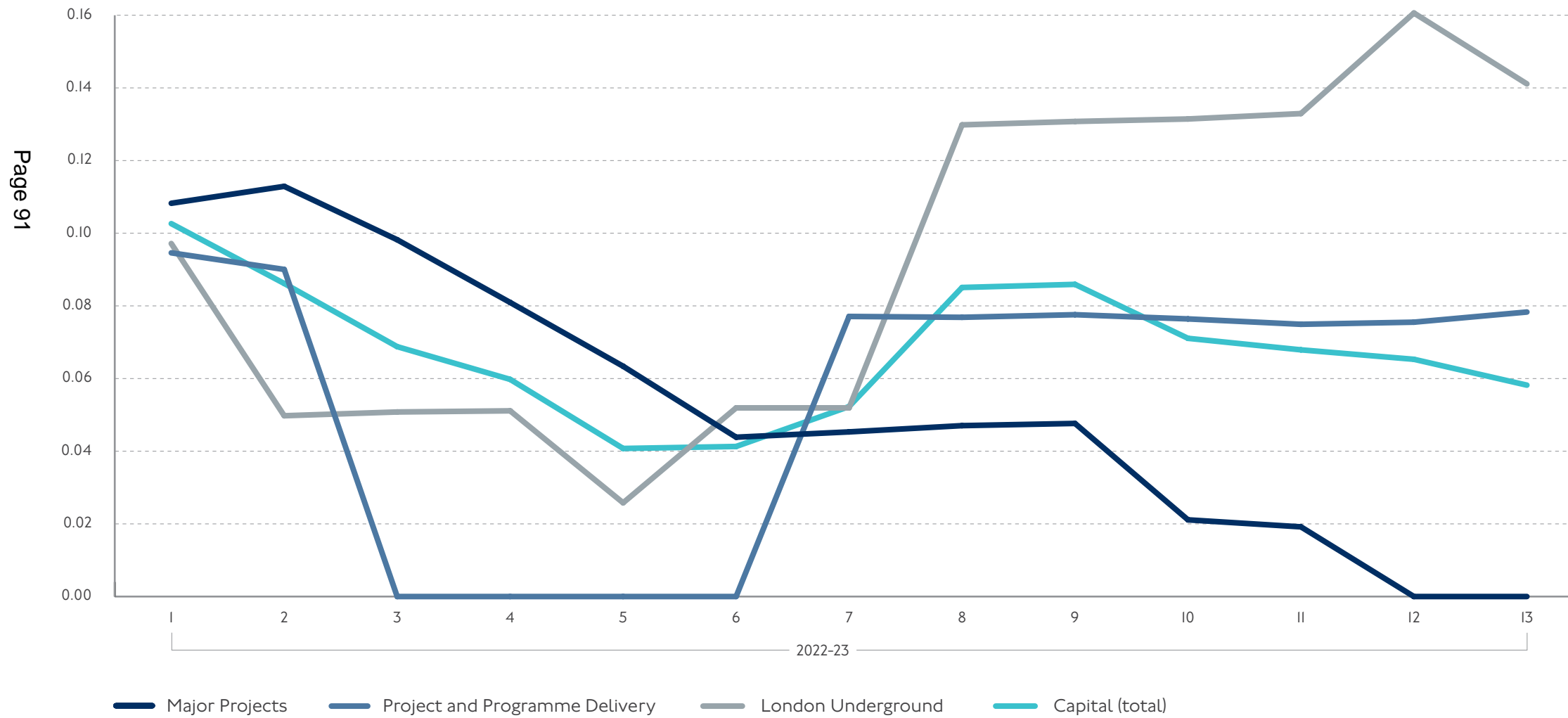


We are aiming to secure funding for critically urgent projects

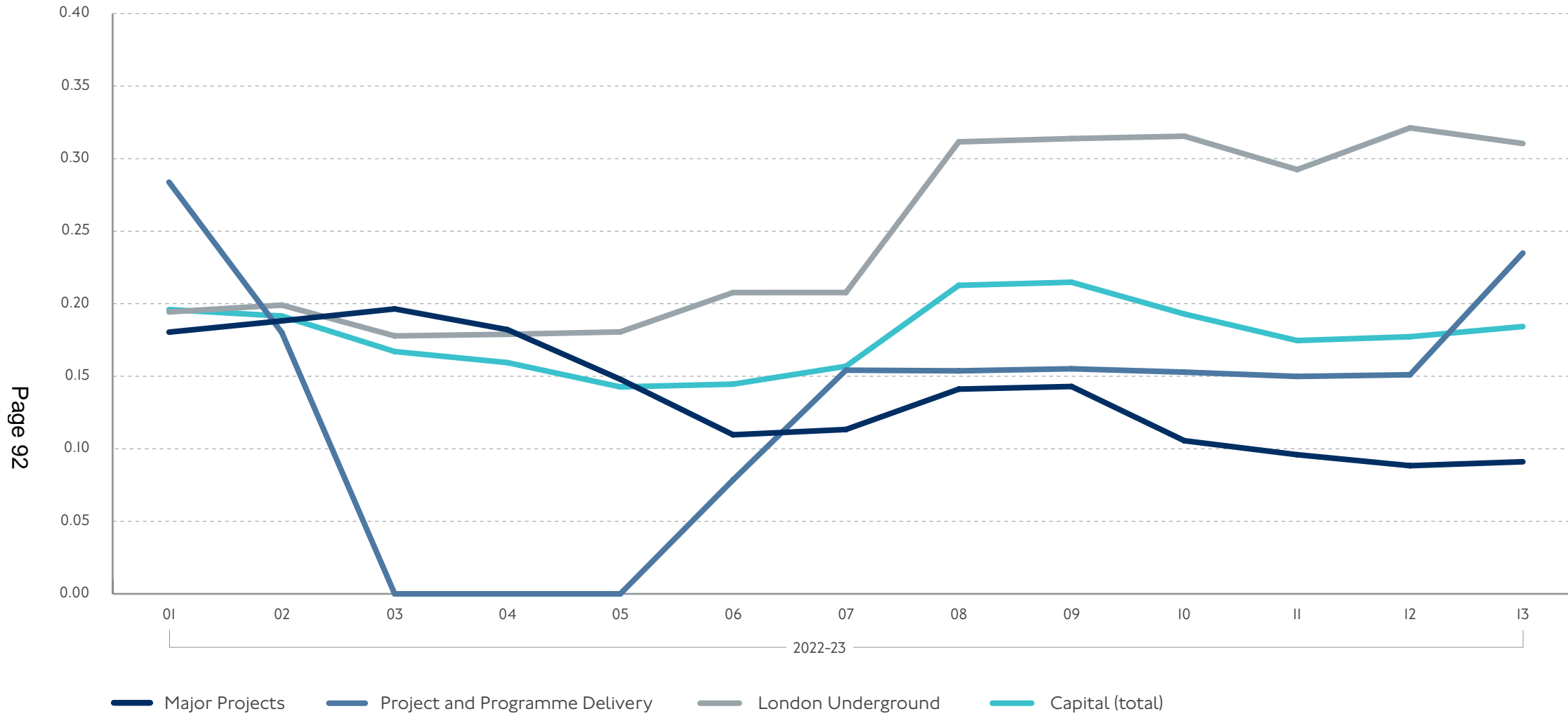
Our safety performance data

We track the number of injuries among our workforce to show our progress towards our safety ambitions

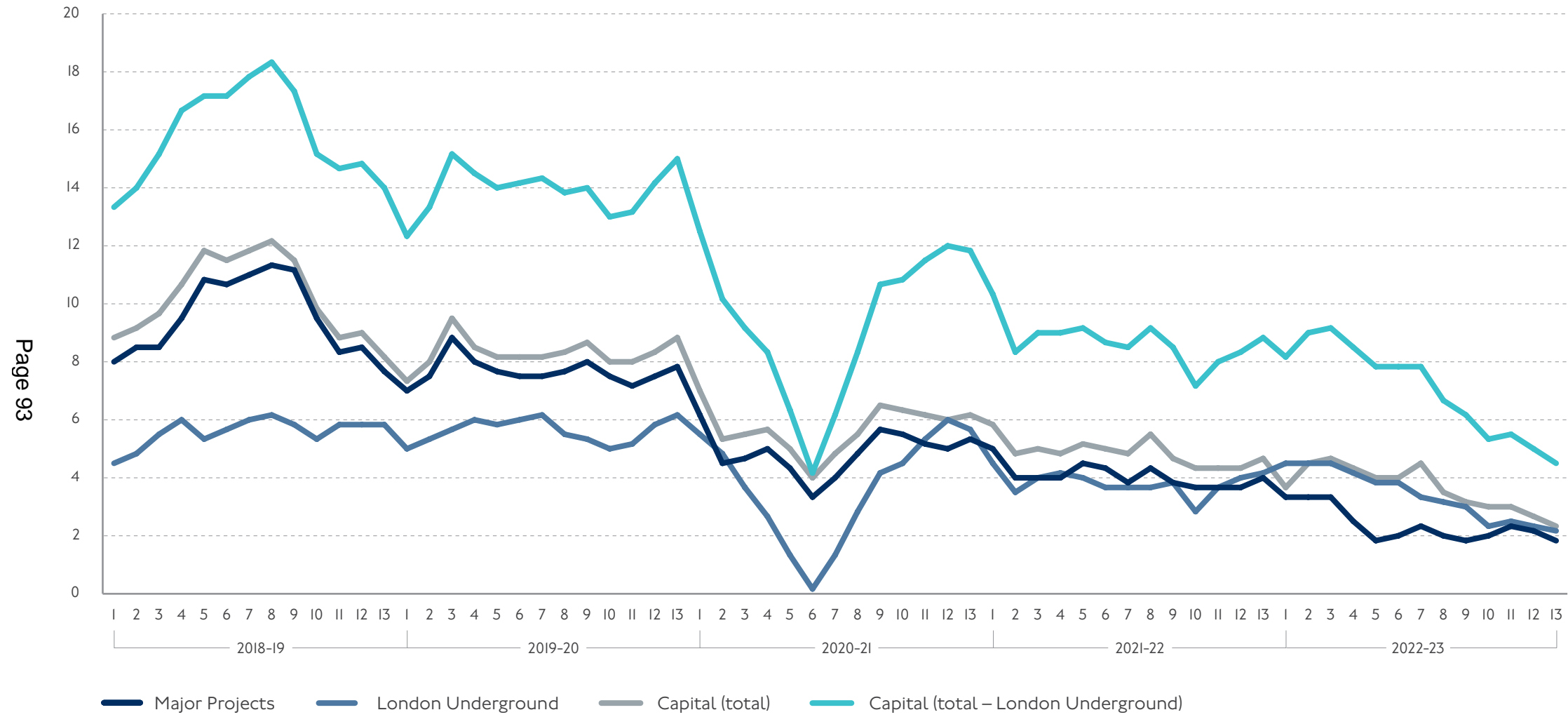
RIDDOR accident frequency rate
(per 100,000 hours worked)



Lost time injury frequency rate
(per 100,000 hours worked)



Total Capital workforce injuries
(six-period average since 2018/19)



About us

Part of the Greater London Authority family led by Mayor of London Sadiq Khan, we are the integrated transport authority responsible for delivering the Mayor's aims for transport. We have a key role in shaping what life is like in London, helping to realise the Mayor's vision for a 'City for All Londoners' and helping to create a safer, fairer, greener, healthier and more prosperous city. The Mayor's Transport Strategy sets a target for 80 per cent of all journeys to be made by walking, cycling or using public transport by 2041. To make this a reality, we prioritise sustainability, health and the quality of people's experience in everything we do.

We run most of London's public transport services, including the London Underground, London Buses, the DLR, London Overground, Elizabeth line, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and the IFS Cloud Cable Car. The experience, reliability and accessibility of these services is fundamental to Londoners' quality of life.

We manage the city's red route strategic roads and, through collaboration with the London boroughs, we are helping to shape the character of all London's streets. These are the places where Londoners travel, work, shop and socialise. Making them places for people to walk, cycle and spend time will reduce car dependency, improve air quality, revitalise town centres, boost businesses and connect communities. As part of this, our expanded Ultra Low Emission Zone and fleets of increasingly environmentally friendly and zero-emission buses are helping to tackle London's toxic air.

During the pandemic, we took a huge range of measures to ensure people were safe while travelling. This included extensive cleaning regimes across the public transport network and working with London's boroughs to introduce the Streetspace for London programme, which provided wider pavements and cycle lanes for people to walk and cycle safely and maintain social distancing. London's recovery is vital to the UK's recovery as life returns to normal. We want to ensure London avoids a car-led recovery and we continue to reassure people the capital and our transport network is safe and ready for them.

We have constructed many of London's most significant infrastructure projects in recent years, using transport to unlock much needed economic growth. This includes major projects like the extension of the Northern line to Battersea Power Station and Nine Elms in south London, as well as our work at Barking Riverside and the Bank station upgrade.

Working with the Government, we opened the Elizabeth line in time for Queen Elizabeth II's Jubilee. This transformational new railway adds 10 per cent to central London's rail capacity and supports the delivery of high-density, mixed-use developments, which are planned around active and sustainable travel to ensure London's growth is good growth. We also use our own land to provide thousands of new affordable homes and our own supply chain creates tens of thousands of jobs and apprenticeships across the country.

We are committed to being an employer that is fully representative of the community we serve, where everyone can realise their potential. Our aim is to be a fully inclusive employer, valuing and celebrating the diversity of our workforce to improve services for all Londoners.

We are constantly working to improve the city for everyone. This means using information, data and technology to make services intuitive and easy to use and doing all we can to make streets and transport services accessible to all. We reinvest every penny of our income to continually improve transport networks for the people who use them every day. None of this would be possible without the support of boroughs, communities and other partners who we work with to improve our services. By working together, we can create a better city as London's recovery from the pandemic continues.

[page left intentionally blank]

Programmes and Investment Committee



Date: 19 July 2023

Item: Independent Investment Programme Advisory Group
Quarterly Report

This paper will be considered in public

1 Summary

- 1.1. This paper presents the Independent Investment Programme Advisory Group (IIPAG) quarterly report for July 2023. It describes the work undertaken since the last report, presented to the Committee in May 2023.
- 1.2. A paper is included on Part 2 of the agenda which contains exempt supplemental 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 Independent Investment Programme Advisory Group's quarterly report and the exempt supplementary information on Part 2 of the agenda.**

3 IIPAG Quarterly Report

- 3.1 Under its Terms of Reference, IIPAG is required to produce quarterly reports of its advice on strategic and systemic issues, logs of progress on actions and recommendations, and the effectiveness of the first and second lines of project and programme assurance. IIPAG's quarterly report for July 2023 is included as Appendix 1 to this paper.
- 3.2 TfL welcomes the work IIPAG are doing on cross cutting reviews and will provide the necessary management responses to recommendations made.

List of appendices to this report:

Appendix 1: Independent Investment Programme Advisory Group - Quarterly Report July 2023

Exempt supplementary information is included in a paper on Part 2 of the agenda.

List of Background Papers:

None

Contact Officer: Howard Carter, General Counsel
Email: HowardCarter@tfl.gov.uk

[page left intentionally blank]

Independent Investment Programme Advisory Group – Quarterly Report July 2023

1. Introduction

1.1. This report to the Committee describes the Independent Investment Programme Advisory Group (IIPAG) activities in May 2023 – June 2023. We have made no new strategic recommendations.

2. IIPAG Activity

2.1. We have undertaken sub-programme reviews in this period covering:

- The Streets, Bus, and Rail and Sponsored Services (RSS) Renewals, and the Rail and Station Enhancements, sub programmes.
- The Surface Technology and the London Underground Technology sub-programmes (which combined with Technology & Data form the new Technology sub-programme).

2.2. This grouping of previously separate sub-programmes for assurance purposes reflects a move towards the new programme structure that the Committee agreed at its May meeting.

2.3. Appendix 1 (Part 2 only) summarises the key points from these reviews.

2.4. We have also been engaged in reviews of two technology projects and the Surrey Quays project, which will be considered through Executive governance. We also received an update on the Bank project.

2.5. The accompanying paper from Project Assurance describes management progress in implementing IIPAG's recommendations.

2.6. Our reviews continue to raise a number of common themes. In this period these included:

- the continuing pressure on resources for some key skills, such as project management and engineering;
- the lack of visibility of baseline costs, scope and schedule against which performance in year and over the life of a project or programme can be judged;
- the clarity and strength of governance arrangements, including questions around the balance between delegation and oversight/control.

- 2.7. We will be following up on the second and third points above through our cross-cutting work.
- 2.8. We have also followed up on an issue raised in the Surface Assets review from last period. This related to the large amount of work needed to submit business cases to support funding requests to the Department for Transport's Major Road Network Fund, and the tight timescales for this. We had further conversations with management and advised that they adopt a portfolio management approach, with the portfolio manager being a focal point for resource allocation and work prioritisation, and with clear lines into the necessary governance for decision making. Management has acted on this advice.

3. Progress with Cross-cutting Work

- 3.1. We are currently engaged in two reviews, the first on the delivery of renewals, and the second on the effectiveness of the Pathway Gate process for projects.

4. Workplan for 2023/4

- 4.1. Our proposed workplan for 2023/4 was submitted to the June meeting of the Audit and Assurance Committee and was agreed. The workplan sets out the sub-programmes and projects that IIPAG expects to assure in 2023/34, together with our proposals for further cross-cutting studies. These include:
- Progress on aspects of value for money (including business case capability, programme level business cases, and treatment of equity and non-monetised benefits);
 - How carbon emissions and climate adaptation are treated in the investment programme;
 - Delivery of Renewals Part 2 (strategy, prioritisation and planning);
 - Effectiveness of Pathway Gates Part 2 (Programmes);
 - Review of progress in Procurement and Commercial;
 - Review of Progress with Asset Information; and
 - Annual review of Effectiveness of Lines of Defence 1 and Lines of Defence 2

Alison Munro
Chair, IIPAG
June 2023

Programmes and Investment Committee



Date: 19 July 2023

Item: TfL Project Assurance Update

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the project assurance work undertaken between 1 April and 27 May 2023. Three sub-programme reviews were undertaken during this time, with the Independent Investment Programme Advisory Group (IIPAG) involved in all three. In the same timeframe six project assurance reviews were undertaken, with IIPAG involved in three of these.
- 1.2 These reviews gave rise to a total of 44 recommendations, of which one was considered to be a critical issue. Critical issues are those that the TfL Project Assurance team or IIPAG believe should be addressed before projects proceed to the next stage.
- 1.3 A paper is included on Part 2 of the agenda which contains exempt supplemental 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 exempt supplementary information on Part 2 of the agenda.**

3 Background

- 3.1 This TfL Project Assurance update provides the Committee with a summary of the second line assurance, provided by TfL's Project Assurance team, and third line assurance, provided by IIPAG.

4 Summary of Project Assurance Activity

- 4.1 From the reviews undertaken, TfL Project Assurance made 29 general recommendations and raised one critical issue, with all of these being agreed with the project teams concerned.
- 4.2 IIPAG made 12 general recommendations and raised no critical issues. The recommendations were all agreed with the respective project teams.

5 Status of IIPAG and Project Assurance Recommendations

5.1 The following graphs show the number of open recommendations, the number that are overdue, and the number closed at the end of Period 10 and Period 13 of 2022/23 and the end of Period 2 of 2023/24.

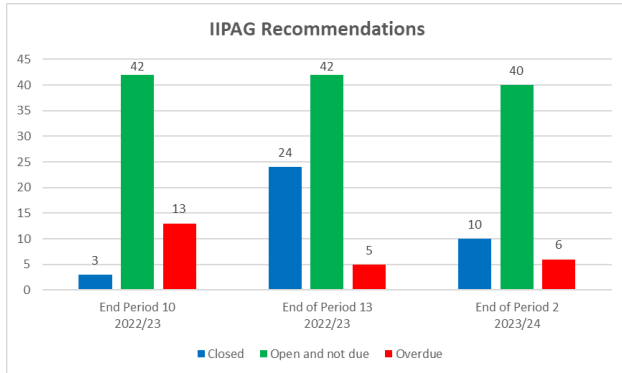


Figure 1: IIPAG Recommendations

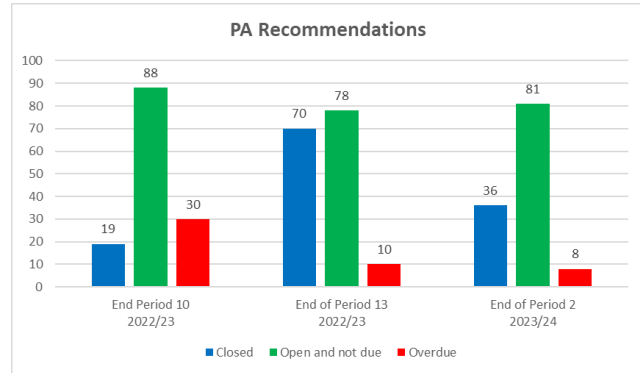


Figure 2: Project Assurance Recommendations

5.2 The following graphs show the length of time that the overdue Project Assurance and IIPAG recommendations have been overdue by, as at the end of Period 2 (ending 27 May 2023), and the Chief Officer area responsible for addressing the recommendations.

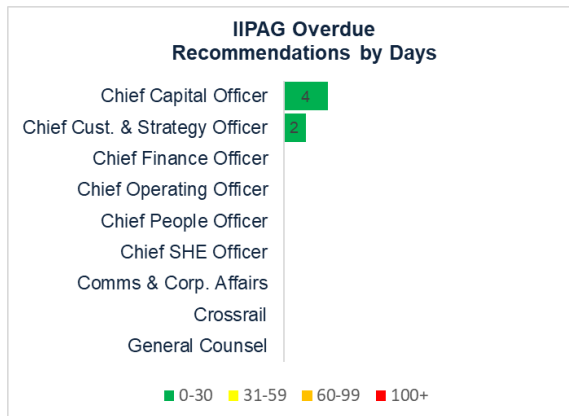


Figure 3: Overdue IIPAG Recommendations

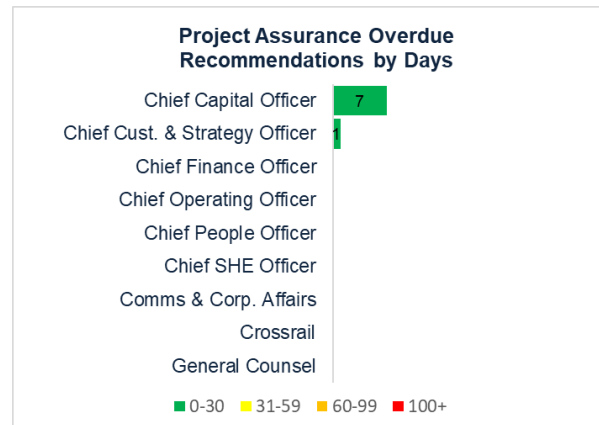


Figure 4: Overdue Project Assurance Recommendations

List of appendices to this report:

Exempt supplementary information is included in a paper on Part 2 of the agenda.

List of Background Papers:

None

Contact Officer: Howard Carter, General Counsel
 Email: HowardCarter@tfl.gov.uk

Programmes and Investment Committee



Date: 19 July 2023

Title: Technology Programme 2023/24 and 2024/25

This paper will be considered in public

1 Summary

	Technology Programme				
	Existing Financial Authority (to 2024/25)	Forecast to 2024/25	Existing Programme and Project Authority	Additional Authority Requested including commitments beyond 2024/25	Total Authority
Gross Cost	885	860	915	96	1,011
Gross Income	-29	-29	-29	0	-29
Net Cost	856	831	886	96	981

Table 1: Summary of Programme and Project Authority (All figures in £m)

- 1.1 This paper is the first annual submission to the Committee of the newly combined Technology Programme (the Programme) which brings together the former three technology-focussed Programmes – Surface Technology (ST), London Underground (LU) Technology and Technology and Data (T&D) – along with a small number of Rail and Sponsored Services technology projects from the former Public Transport Programme.
- 1.2 The Programme aims to renew and enhance our technology estate to effectively support our operations, ensure compliance with relevant legislation and continually improve our customer experience.
- 1.3 This paper requests £95.7m additional Programme and Project Authority to fund planned budget and business plan investment priorities in 2023/24 (£107.2m) and 2024/25 (£85.9m), as well as commitments that span into future years (from 2025/26) that need to be made before the next planned submission to the Committee in March 2024. This request includes £29m Programme and Project Authority for income which was referenced in the approval given for T&D matters by the Committee in March 2023. There is a related paper on Part 2 of the agenda that provides a breakdown of forecast expenditure, commitments and income. The Committee approved authority for the 2023/24 and 2024/25 T&D aspects of the Programme (including income) in March 2023, meaning no further authority is requested at this time.

1.4 The focus of this paper is to:

- (a) set out the background and context for the Technology Programme;
- (b) provide an update on the progress of project delivery and successes since the previous Surface Technology (July 2022) and London Underground Technology (May 2022) submissions;
- (c) summarise the planned delivery from July 2023 to the next annual submission to the Committee, planned for March 2024, as well as key challenges and opportunities for the year ahead; and
- (d) request an additional £95.7m Programme and Project Authority as outlined in Table 1.

1.5 A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt 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 contractors. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

1.6 Appendix 2 sets out the background and progress to date for the iBus2 project. As the procurement process will conclude after the next meeting of the Committee, it is proposed to request approval of Procurement Authority to enable contract award by Chair's Action.

2 Recommendations

2.1 The Committee is asked to note the paper and the exempt supplementary paper on Part 2 of the agenda and:

- (a) approve additional Programme and Project Authority of £95.7m for the Technology Programme, bringing the total Programme and Project Authority to £981.4m;**
- (b) note that matters for which Programme and Project Authority is sought above include commitments that extend beyond the period of the 2023/24 Budget and provision will, therefore, need to be made for those commitments in future Budgets;**
- (c) note that Procurement Authority for the various initiatives will be sought at officer level in accordance with Standing Orders; and**
- (d) note the background and progress to date for the iBus2 project set out in Appendix 2, and that it is proposed to seek approval of Procurement Authority, to enable contract award, by Chair's Action in October 2023.**

3 Background

- 3.1 The Mayor's Transport Strategy (MTS) sets out a vision that TfL "will work to ensure its information systems and payment platforms take account of technological advances and evolve to remain fit for purpose". (Proposal 102). TfL's response to the MTS sets six priorities, including "to exploit technology to produce better and faster results".
- 3.2 The former ST and LU Programmes were established in March 2019 and October 2020 respectively. They consisted of renewals projects to ensure transport operations retain the technology capabilities required to operate safely and efficiently and to ensure our core assets and systems operate in a co-ordinated manner. They also contained a smaller number of enhancements projects which support these aims and help ensure our technology estate capability remains fit for the future while exploring new opportunities to improve network safety and customer security.
- 3.3 Together, they provided a robust structure to support increased levels of investment in technology which have enabled many pillars of the MTS including Healthy Streets, Vision Zero and enhancing customer experience. For example, we are now providing body worn video cameras to deter violence and aggression towards our front-line colleagues; renewing and improving the systems used to operate London's road network so that our colleagues can keep people moving safely and reliably, securing the future of real-time bus journey information and trialling e-bikes in our cycle hire offer. We are also upgrading the critical communication networks that keep trains moving, improving station security and implementing systems to help our compliance teams tackle fare evasion in more innovative ways.
- 3.4 The newly combined Technology Programme will continue to deliver a wide range of benefits. Through technology system renewal and enhancement projects comes reduced network disruption and improved system availability and data across roads, public transport and transport back-office systems. This in turn leads to enhanced customer and staff satisfaction and improved safety and wellbeing. The Programme also aims to deliver financial benefits with income and revenue that can be reinvested into further initiatives, as well as green benefits to reduce our carbon footprint.
- 3.5 In 2022, the Committee approved £154.1m Programme and Project Authority in July for the former ST Programme and £225.9m Programme and Project Authority in May for the former LU Technology Programme. Up to the end of 2022/23, £64.9m had been spent against the former ST Programme with £30.2m in 2021/22 and £34.7m in 2022/23 and £147.9m had been spent against the former LU Programme with £112.9m in 2020/21 and 2021/22 and £35m in 2022/23.

Combining the Technology Programmes

- 3.6 During the previous Integrated Assurance Reviews (IAR) for both former programmes, the Independent Investment Programme Advisory Group (IIPAG) recommended that consideration should be given to combining the programmes

into one, business-wide, technology investment portfolio to enable greater efficiency and co-ordination of planning and delivery.

3.7 Further to this, a paper was approved by the Committee in May 2023 which approved the merger of the three technology-focussed Programmes – LU, ST and

3.8 The Programme will return to the Committee with a single annual request from March 2024.



4 Programme Delivery 2022/23

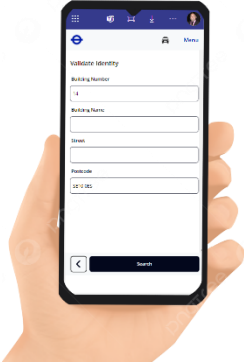
Key Achievements

4.1 In the 2022 annual submissions to the Committee, the ST and LU former programmes set out key project deliverables for the financial year. Table 2 sets out progress against these and highlights the achievements and benefits that have been realised.

4.2 A more detailed list of achievements and associated benefits realised following project delivery in 2022/23 for the projects within the two programmes is provided in Appendix 1 and a breakdown of the forecast expenditure, commitments and income is provided in the related paper on Part 2 of the agenda.

Table 2: Achievements against key deliverables in 2022/23

Project	Key milestones for 2022/23	What we achieved and key benefits
<p>iBus2</p> 	<p>Releasing the Invitation to Submit Final Tender (ISFT) for iBus2 back-office system procurement in winter 2022/23; to ensure buses continue to operate effectively in London.</p>	<p>Achieved – the ISFT was released in February 2023.</p> <p>We are on track to deliver improvements for our customers with new features including real-time information during diversions; and linking virtually to more traffic lights to help prioritise buses at junctions enabling them to travel more quickly, prioritising sustainable transport.</p> <p>Evaluation of bids is underway with contract award for a three-to-four-year design, development and roll out with contract award scheduled for autumn/winter 2023/24.</p>
<p>Cycle Hire: ‘Modernise and Electrify’ and ‘Expansion’</p> 	<p>Launching 500 Santander Cycle e-bikes in summer 2022, to offer more flexibility for customers and support future financial sustainability.</p> <p>Delivering new Cycle Hire docking stations in Southwark.</p>	<p>Achieved – 500 e-bikes were successfully delivered into operation on 6 October 2022.</p> <p>Although slightly delayed due to supplier delivery, systems integration taking longer than expected and Operation London Bridge, our e-bikes are proving popular with our customers; with total hires exceeding 250k and daily utilisation twice as much as classic bikes.</p> <p>E-bikes are completely carbon neutral and have “assisted peddling” with 15mph maximum speed making them a quick and sustainable way for customers to travel. We aim for e-bikes to help break down the barriers that stop some people from cycling, including fitness, age and journey length.</p>

		<p>The Cycle Hire Southwark Expansion (funded by Southwark Council) was completed at the end of 2022, providing seven new docking stations for people to use in Bermondsey and Walworth. The expansion has allowed more people in Southwark to explore the Capital in an affordable way that supports their physical and mental wellbeing, while helping to cut air pollution and protecting the local environment. They also enable people from across London to end their journeys in Bermondsey and Walworth.</p>
<p>Enforcement, Compliance and Operational Safety (ECOS)</p> 	<p>System renewal to provide front line colleagues the tools to deliver enforcement and compliance across London, including a mobile app which officers use to ensure taxis are operating safely, in line with TfL and national standards.</p> <p>Development of new capabilities to commence mid 2022/23 onwards, with incremental software releases until 2023/24.</p>	<p>Achieved – Taxi and Private Hire mobile app developed in November 2022. The app is developed to work with new Taxi Operating Licence Application software which is scheduled to be released in June 2023 and provide on street access to key licensing information.</p> <p>During 2023/24, mobile access will be rolled out to operational officers across other various operational systems and areas.</p> <p>Integrated technology within the new app means that our officers will no longer need to call in each time they report an incident on the network or retrieve key compliance information, enabling a more efficient operation.</p>

Deployable Enforcement Cameras (DEC) – Phase 2




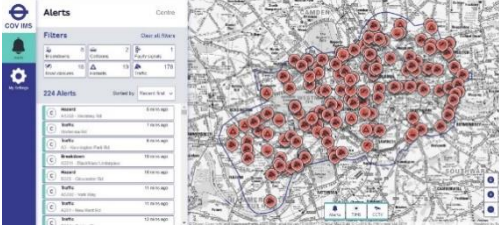
Installation of 42 additional DEC sites across London's network by March 2023.



DECs are mounted on a lamp column and are moveable from location to location. They automatically capture a video of any traffic contravention which, once validated, are processed for issuing of penalty charge notices. This has direct benefits for our customers including reducing road danger, increasing bus lane compliance, and reducing congestion at junctions. Revenues generated are reinvested back into the business to further benefit customers.



Partially achieved – By the end of March 2023, 26 sites were installed.

Delivery on site fell short of target owing to more lamp columns than anticipated failing structural surveys which resulted in additional structural work or alternative sites needing to be located to ensure the structural support is sufficient for mounting cameras onto.

The delay to installation has meant a delay in realising the safety benefits and in turn, a loss of expected revenue during that period. Lessons are being learnt regarding the structural aspects and acceleration of delivery on site is planned through 2023/24 as a result.

<p>Body Worn Video Cameras (BWV)</p> 	<p>Deliver approximately 300 additional BWV cameras in 2022/23</p>	<p>Achieved – By March 2023, 300 additional BWV cameras were delivered to operational staff.</p> <p>Following increased unacceptable incidents of Work-related Violence and Aggression (WVA) against our staff, this project aimed to roll out BWV cameras to all TfL staff at risk of WVA.</p> <p>A key commitment from our Workplace Violence Strategy, the cameras capture video and audio that may be, and have been, used by the Police for potential prosecutions of individuals and have proven useful in de-escalating situations and preventing staff assaults, therefore improving staff satisfaction and wellbeing.</p>
<p>Surface Intelligent Transport System (SITS)</p> 	<p>Complete final release of Phase 1 of the Common Operating View Incident Management System (COV IMS) by February 2023</p> <p>The SITS programme is a collection of new tools and systems used by our Network Management team and are aimed at making our roads safer and more efficient.</p>	<p>Achieved – COV IMS completed all the code required for the final release of Phase 1 in February 2023, achieving a Tier 2 Milestone.</p> <p>COV IMS is replacing our existing incident management system and enables us to detect incidents faster by using a live feed of on-street traffic conditions and flagging issues directly to our Control Centre. Our colleagues continue to provide positive feedback on the new system.</p>

<p>Passenger Incident Management Systems (PIMS)</p> 	<p>Mobilisation in summer 2022 to ensure a system is in place to manage incidents in the Network Management Control Centre (NMCC).</p> <p>The project aims to renew the capability for Control Centre colleagues to manage passenger incidents effectively, sharing information with third parties including emergency services and bus operators ahead of the existing system expiring in 2025.</p>	<p>Achieved – The project was mobilised in August 2022, conducted early market engagement from March to May 2023, and is currently evaluating Build vs Buy Options to determine the approach with best value.</p> <p>PIMS will facilitate continuation of ability of operational staff to log, view and manage incidents, as well as enable staff to plan solutions for incidents and events using historical data from previous incidents and events.</p>
<p>Remote Monitoring to Next Generation Remote Monitoring (NGRM)</p> 	<p>Complete feasibility and confirm a solution by September 2022.</p>	<p>Achieved – Gate 2 passed in September 2022.</p> <p>The project will deliver new traffic signals hardware and capability to ensure we are able to continue monitoring traffic signal faults remotely once the BT communication lines are switched off in 2025. Without this system, we would be unaware of faults or problems with traffic signals which would cause disruption and congestion as well as increasing road safety risk.</p>

<p>Countdown 3</p> 	<p>Procurement of new support contract for the supply, installation and maintenance of countdown signs to start in autumn 2022.</p>	<p>Partially Achieved Commencement of procurement took place in April 2023, delayed from autumn 2022 due to a revised procurement approach being taken forward. While this does represent a delay to the contract award, some of this time has been recovered through procurement as only one supplier is being sought meaning it will take less time to review.</p> <p>We also decided to delay procurement to take advantage of emerging industry standards for real time information across public passenger transport. We have taken a leading role on the board for these standards – helping to shape the way forward with the joint aim to make it cheaper and easier use open-source real time information through a common standard approach. This adoption of standards has enables us to reduce (forecast) data traffic costs and will allow us to open the market to a wider range of bidders to improve future commercial opportunities.</p> <p>The new support contract will enable countdown signs to receive data directly from iBus2 in future and will support providing Real Time Information to third party assets. This will help to maintain and enhance customer information, delivering an overall improved customer experience.</p>
<p>Connect</p> 	<p>Replacement of 100 Connect radio units by March 2023</p>	<p>Achieved By November 2022, 100 radio units were replaced, ahead of target. The units provide communication between LU trains, stations and operational control rooms.</p> <p>Connect radio is fundamental to the operation of London Underground and the radio upgrade delivers a supportable system that provides many more years of service and exploits the significant investments the business has already made. The upgrade has been delivered without any customer impact.</p>

Station Security Technology Integration Programme (SSTIP)



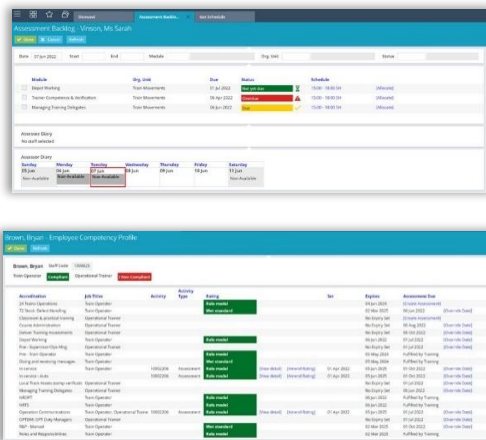
Delivery of Critical Incident Management (CIM) functionality at 100 LU stations by March 2023 in response to the Lord Harris Report (2022)¹.

Achieved

CIM was successfully installed and operationally ready at 101 sites by March 2023, improving our remote response capability.

This functionality provides us with the ability to remotely control and evacuate a station in the event of a critical incident. These measures are supported by the Department for Transport and the Centre for the Protection of National Infrastructure.

Competency Management System (CMS)



Complete design and implementation of new CMS for train operators including trial by March 2023

Achieved

Completed design and implementation of a new competency management system for train operators by January 2023 and rolled-out new system to Piccadilly Line operations. The system will now be rolled-out to other lines over coming years (as part of Business-As-Usual (BAU)), whilst we investigate the feasibility of a broader business-wide application of the same CMS tool. Early indications suggest that the new CMS is having a positive effect upon training attendance. A more detailed review of the benefits achieved is underway and will be used to inform the feasibility of any further roll-out across the organisation.

¹ Harris, T (2022). London Prepared: A City-Wide Endeavour – An Independent Review of London’s Preparedness to Respond to a Major Terrorist Incident.

Asset Management Information Systems (AMIS)

Complete project mid 2023

Delayed

Project completion is delayed due to a culmination of several issues including poor supplier performance, gaps in solution capability and missed business dependencies) and now due to be completed by the end of 2023/24.

AMIS underpins our ambition to become one operational organisation by consolidating two legacy Asset Management Systems onto a single solution. The project will save us £21m over 10 years by reducing our spend on supporting and upgrading two systems. It also enables organisational change in some areas such as the Asset Control Centre, removes boundaries to operating as a single asset organisation and enables a new standard way of managing our maintenance service providers.

So far, the project has delivered to over 2,800 users (70 per cent of total users in scope) and migrated the following asset areas into a single system: Asset Control Centre, Fire, Mechanical, Premises, Pumps, Lifts, Escalators, Electrical, Cables, Signals and Fleet.

The remaining areas to migrate are Track, High Voltage Power, Civils, Communications and Trams (multiple asset types).

Delays to project completion means we need to retain project resources for the remainder of 2023/24, increasing overall project costs, reflected in increased EFC.

Financial Performance and changes to EFC

- 4.3 At the last submission to the Committee in July 2022, £42.7m Programme and Project Authority was granted for the former ST Programme for financial year 2022/23 and £34.6m was spent. The financial year budget was reset in Period 7 of 2022/23 to £36.3m due to changes in government funding agreements. Key causes of the £1.7m underspend in 2022/23 include issues with supply chain resourcing impacting the number of projects and pace at which they could be delivered; particularly commercial resources that were required for projects with contractual elements. Efficiencies of £2.2m were also realised within the financial year. In May 2022, Programme and Project Authority was granted to the former LU Programme for a forecast spend of £32.9m for 2022/23 and £35m was spent. This is due to a deliberate acceleration of planned spend from future years to 2022/23, which enabled us to purchase critical radio hardware at discounted costs and to mitigate the impact of long lead-in times within the supply chain.
- 4.4 Since the last submissions to the Committee, there have been some changes to EFCs, details of which are included in the related paper on Part 2 of the agenda.

5 Investment Plan 2023/24 – 2024/25

- 5.1 The 2023/24 Programme consists of 80 projects, with 59 renewals and 21 enhancements; of which 57 projects are continuing from last year and 23 are new for 2023/24 or 2024/25 (see Appendix 1 for details). Sixty-two projects are expected to continue in to 2024/25 with 18 due to close in 2023/24.
- 5.2 An overview of the financial plan for 2023/24 and 2024/25 is set out in Table 3, and a separate Part 2 of this paper provides the breakdown of forecast expenditure, commitments and income. See Appendix 1 for further information on deliverables planned during 2023/24 and 2024/25.
- 5.3 Notable milestones for 2023/24 are:
- (a) **iBus 2** – Contract award for iBus2 system renewal by winter 2023/2024;
 - (b) **Deployable Enforcement Cameras (DEC) Phase 2** – Installation of DEC at 265 sites across London by end of March 2024;
 - (c) **Cycle Hire Re Let** – Publish Contract Notice by summer 2023;
 - (d) **SITS RTO (Real Time Optimiser)** – Ready to commence migration to live operations by autumn 2023;
 - (e) **TfL's Video Management System (TVMS)** – Commencement of procurement by summer 2023;
 - (f) **Connect** - Complete roll out of new radio hardware base stations at all 293 locations by March 2024; and
 - (g) **AMIS** - Complete delivery of AMIS migrations for LU assets by February 2024.

6 Financial Plan

- 6.1 Of the £981.4m total Programme and Project Authority sought in this request, £107.2m is to fund investment planned for 2023/24 and £85.9m is for 2024/25. The Programme will return to the Committee on an annual basis to request Authority for a rolling two-year approval with the next submission planned for March 2024.
- 6.2 Additionally, £97.1m for future financial years is included, to cover existing or planned commitments made before the Programme returns to the Committee in March 2024, notably for iBus2.
- 6.3 A paper is planned to be submitted in October 2023 requesting approval for contract award recommendation – see Appendix 2 briefing paper which sets out background and progress to date for iBus2. It is anticipated that the procurement process will be concluded during October 2023 and the contract award announced in November 2023. As the next meeting of the Committee is scheduled for December 2023, it is proposed that a Chair's Action request will be submitted to Committee in mid-October 2023 summarising the outcome of the process and requesting approval of Procurement Authority.
- 6.4 Further details on commitments are shown in Appendix 1 and the related paper on Part 2 of the agenda. In some cases, this extends beyond the period of the Business Plan and Budget (Financial Authority is to 2025/26). Appropriate provision will, therefore, need to be made for those commitments in future Business Plans and Budgets.
- 6.5 This authority request aligns with budgeted expenditure spend for 2023/24 and our approved business plan for 2024/25, also including allowances for efficiencies. Opportunities to deliver savings include reduced risk exposure through careful risk management, close management of scope and requirements, and working with suppliers to deliver projects more efficiently. Our forecast expenditure is currently higher than our budget for 2023/24. This is primarily due to the adoption of a work-bank management approach enabling us to accelerate further priority schemes should other projects take longer than forecast or if additional funding were to become available in year. The work-bank will be managed closely throughout the year to ensure our programme-level budget is not exceeded.
- 6.6 All projects within the Programme currently sit within one of four reporting categories in SAP (one for LU and three for ST), which were set up when the former ST and LU Programmes were initiated. Appendix 1 shows how the Technology projects are expected to map across into a new reporting structure that is currently being created within SAP.
- 6.7 The projects are grouped into reporting categories to aid delivery, governance and financial reporting. These categories are based on delivery areas with common modes, strategies, end users and / or stakeholders.

Table 3 – Overview of financial request (all values in £m)

	Existing Authority	Prior Years Spend	Planned Expenditure 2023/24 (Budget)	Planned Expenditure 2024/25 (Business Plan)	Future Commitments (25/26 and beyond)	Authority Requested	Total Authority
Surface Tech	157.7*	64.9	66.7	49.9	96.7	120.5	278.2
LU Tech	225.9	147.9	40.5	36.0	0.4	-24.8**	201.2
T&D***	502.2	-	-	-	-	-	502.2
Total	885.8	212.8	107.2	85.9	97.1	95.7	981.4

*Existing Programme and Project Authority for Surface Technology includes £3.6m for the Ticket Vending Machine (TVM) project, which has been transferred from the Public Transport programme. This will be formally removed from the Public Transport programme as part of their submission to the Committee in July 2023.

** Authority for the Connectivity Asset Renewal (CAR) Programme is not being sought as part of this request. Due to the size and complexity of this programme, a further submission will be made to the Committee in late 2023 seeking additional authorities to proceed. Combined with re-allocations and cost savings across the programme, this has resulted in a negative-value Programme and Project Authority request for the LU Technology sub-section.

***T&D is not considered as part of this paper – details provided for context.

7 Key Challenges and Opportunities

7.1 The joining of the three Technology Programmes presents a key challenge in terms of the resources and planning required to implement such a change. It also presents a key opportunity in terms of bringing efficiencies into the Programme including across governance and delivery. The joining of Surface and LU Technology sub-sections, as an initial step, is in progress and relevant teams are engaged in the requirements. This will include standardisation of governance and mapping of appropriate value chain representatives to ensure robust reporting and decision making is in place at all levels. Existing best practice opportunities are being investigated to enable the optimal solution to coordinate across operational and delivery areas

7.2 Available resourcing and cost forecast accuracy are also key challenges to delivery. The current Programme plans reflect resource requirements and existing availability and there will continue to be a focus on forecast accuracy to ensure the Programme identifies internal and external resource gaps where possible. The related paper on Part 2 of the agenda includes details of changes to project EFCs since the last submission along with rationales. In addition to a focus on more accurate early forecast accuracy, we will also carry out a series of project focussed deliverability reviews throughout 2023/24 and will review and update project level Business Cases as required to ensure the Programme continues to deliver value for money.

8 Programme Benefits and Value for Money

- 8.1 Each of the projects within the Programme will deliver against several core benefits, as outlined in Table 4 on the next page. These cumulatively contribute towards Strategic Outcomes such as those set out in the MTS. The core benefits form part of a new 'framework' for benefits management which sets out a structure and process to enable the Programme to track and report on contribution to Strategic Outcomes over time.
- 8.2 In addition to the core benefits in Table 4, each project will also deliver project level benefits specific to a modal area or end users, for example, providing improved real time bus information for customers as part of iBus2 and Countdown 3 will deliver the benefit of an enhanced customer experience which in turn will contribute to a safe, attractive and reliable bus network.
- 8.3 We are continuing to work with Asset Strategy colleagues to develop appropriate plans for the long-term strategic view of the future Programme which involves participation from relevant business areas to define and prioritise future investment. This includes applying established best practice approaches across the Programme and adopting an annualised workbank, whereby projects are added to the Programme each year via a 'Long Term Capital Plan' with a strong focus on addressing obsolescence and maintaining core assets / systems. Consistent with the wider Investment Programme, this approach ensures that projects are prioritised according to operational impact and tangible customer benefits and means that projects addressing safety and compliance are progressed with appropriate urgency.
- 8.4 Further detail on planned project level achievements and benefits are included in Appendix 1.

Table 4 – Core Benefits for the Technology Programme

Core Programme Benefits	Project examples See Appendix 1 for project details	Description	Strategic Outcomes from TfL Roadmaps / MTS / other Mayoral or TfL policies / plans
Increased staff satisfaction	SSTIP, AMIS, LU Cyber Security (NIS), CMS, RailSys, Performance Data Warehousing (PDW), Electronic Incident Reporting Form (EIRF) (Replacement) / Customer Performance Information Database (CUPID), Revenue Protection, NACHS 5G, Bus and Coach Service Delivery Technology Improvement Programme (BCSD TIP) – Network Renewal, Staff Devices, Operational Staff Safety (OSS)	Providing colleagues with high-quality tools to do their jobs and equipment, training and enforcement to ensure they are safe while doing so.	Colleague, Quality Public Transport, Safe
Increased staff safety	SSTIP, Staff Devices, CMS, OSS, EIRF / CUPID		
Improved customer satisfaction	SSTIP, Staff Devices, CMS, iBus2, EIRF / CUPID, Cycle Hire, SITS, Countdown 3, Tunnels Controls Systems, BCSD TIP – Network Renewal, ATS Dial-a-Ride (DaR) Booking and Scheduling, E Scooters, Bus Customer Action Plan (BCAP) Bus Busyness, Micro-mobility management, London Cable Car Passenger Communication Systems (LCC PCS)	Encouraging mode shift to sustainable modes with public transport and customer information improvements and greater support for micromobility	Customer, Safe, Quality Public Transport, Vision Zero
Increased customer safety	SSTIP, Staff Devices, CMS, EIRF / CUPID, Tunnels Controls Systems, DEC, LCC Passenger Communication Systems, PIMS, ECOS	Reduced perception of safety and reduced risk to customers through delivery of physical assets such as cameras, training, enforcement and data gathering	
Reduced transport network disruption	Connect, CAR, SSTIP, AMIS, Staff Devices, CMS, RailSys, EIRF / CUPID, NMCC Support Systems, iBus2, SITS, DEC, ECOS, Tunnels Controls Systems, Bus Integrated Command	Maintaining and optimising network performance for road vehicles (including public transport) - notably through the Surface Intelligent	Network Performance, Efficient use of road space, Improved bus speeds / journey times

	and Control System (BICCS), BCSD TIP Asset Fault Reporting, Micro-mobility management, Highways Annualised Programme (HAP), Bus Business Intelligence Reporting (BBIR), PIMS	Transport Systems (SITS) Programme	
Reduced carbon use in running our transport / technology systems	Cycle Hire, Micro-mobility management, E-Scooters	Reduced carbon emissions from transport because of mode shift to sustainable modes and / or improvements to technology systems that encourage efficient use of materials and energy	Green roadmap, Corporate Environment Plan 2021
Reduced TfL costs	AMIS, LU Cyber Security (NIS), RailSys, PDW, Cycle Hire, Future Bus Systems (FBS), ATS DaR Booking and Scheduling, E Scooters, BCSD TIP – Station Security	Minimising the cost of providing and operating TfL's technology estate; supporting operational efficiencies and supporting opportunities to generate income / revenue	Finance roadmap
Increased TfL income / revenue	Revenue Protection, DEC, Cycle Hire, SITS		
Increased system availability	Connect, FON, SSTIP, AMIS, Staff Devices, LU Cyber Security (NIS), CMS, RailSys, PDW, EIRF / CUPID, Revenue Protection, NACHS 5G, NMCC Support Systems, iBus 2, Cycle Hire, SITS, ECOS, Remote Monitoring NGRM, TVMS, Countdown3, Tunnels Controls Systems, BCSD TIP – Network Renewal, FBS, ATS DaR Booking and Scheduling, Compliance, Policing, Operations and Security (CPOS) Data Futures, Traffic Order Management Enforcement Solution (TOME), E Scooters, BCSD TIP – Asset Fault Reporting, Micro-mobility management, NMCC Support Systems, LCC PCS, HAP, PIMS, BBIR	Maintaining and improving the quality and performance of TfL's technology estate; reducing cyber risk, achieving compliance with legal / industry standards and rationalising TfL's technology estate	Our Foundation roadmap
Increased system compliance	SSTIP, LU Cyber Security (NIS), CMS, PDW, Cycle Hire, NIS Compliance,		

	BBIR, PIMS, TOME, Device Refresh		
--	----------------------------------	--	--

9 Equality and Inclusion

- 9.1 Section 149 of the Equality Act 2010 (the Public Sector Equality Duty) provides that, in the exercise of their functions, public authorities must have due regard to the need to:
- (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under the Equality Act 2010;
 - (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and
 - (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.
- 9.2 In delivering schemes, TfL will comply with the Public Sector Equality Duty and Equality Impact Assessments will be undertaken and considered as appropriate.

10 Assurance

- 10.1 An Integrated Assurance Review on the Technology Programme was carried out in May 2023 by the TfL Assurance Team and IIPAG. No critical issues were raised (by IIPAG / Project Assurance).
- 10.2 First line assurance will be carried out on the Programme and its constituent projects. The next Programme level assurance review will be undertaken in advance of the next annual submission to the Committee in March 2024.

List of appendices to this report:

Appendix 1: Overview of 2022/23 Delivery and 2023/23 and 2024/25 planned Delivery
Appendix 2: iBus2 Briefing

List of Background Papers:

Programme and Investment Committee papers:
Surface Technology: March 2019; October 2020; March 2021; October 2021; July 2022
London Underground Technology: October 2020; May 2022
Programme Structure: May 2023

Contact Officer: David Rowe, Interim Director, Investment Delivery Planning
Email: DavidRowe@tfl.gov.uk

Appendix 1 – Overview of 2022/23 Delivery and 2023/24 and 2024/25 planned Delivery

Annualised Programmes

The Annualised Programmes reporting category contains four renewal projects known as the Highways Annualised Programme. This includes planned delivery on annual cycles to ensure there are robust and reliable systems in place to support the Network Management and LU Control Centres (NMCC and LUCC).

Projects Included	Lifecycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
Lane Rental Redevelopment	N/A - Annualised	Ongoing upkeep and updates to TfL's Lane Rental system	Continued annualised spend for internal staff time on a unique dedicated system which records lane rental charges / income and usage for utility companies and enabling the ability to offer discounts if there is a performance and Vision Zero target.	2023/24 deliverables include ensuring cloud compatibility to work with third parties, improving Metropolitan Police / CPOS inspection on the Transport for London Road Network (TLRN); and enhancing reporting and safety inspection capabilities. Commitments: None.
LondonWorks - Upkeep and Development	N/A - Annualised	Ongoing upkeep and development of London Works system	Continued annualised spend for ongoing development and upkeep of the London Works (LW) system which enables collaborative street works planning and improved coordination processes for TfL, London's 33 Boroughs and works promoters; whilst enabling TfL and others to fulfil Highway Authority statutory obligations to coordinate street works. It also minimises congestion caused by street work activities and public events; plus supports safety-related on-street inspections that contribute to the MTS and Vision Zero.	The key 2023/24 deliverables are alignment with Department for Transport (DfT) Street Manager API (Application Programming Interface), creation of new Forward Planning Functionality in LondonWorks, supporting SWAP (Supplementary Works Approval Portal) and LondonWorks Enhancements projects and the creation of new NOS (Network Operating Strategy) Bus web application. Contract will be extended / another supplier found if required Commitments: £0.07m for commitments within current contract.
Traffic Systems	N/A - Annualised	Ongoing updates to integrate TfL / DfT services for managing roadworks in England	Continued annualised spend on Traffic Systems initiative in the fulfilment of its statutory duties under the New Roads and Street Works Act 1991 (NRSWA) and the Traffic Management Act 2004 (TMA), as well as compliance with the DfT's "Street Manager" service for coordinating roadworks in England.	The 2023/24 deliverables include compliance with DfT Street Manager, Public Register and Traffic Order Management Systems (TOMS). The key features are ongoing development of the LondonWorks TOMS application, bug fixing and stabilisation and supporting Traffic Order Management Enforcement Solution (TOME) integration. Contract will be extended / another supplier found if required Commitments: £0.07m for commitments within current contract.
Operational Traffic Data Analysis	N/A - Annualised	Ongoing updates to ensure traffic movement data system held by TfL is secure and fit for purpose	Continued annualised spend on the Geographical Information Systems (GIS) based tool to deliver key traffic movement data information with internal and external stakeholders in a user-friendly geographical map-based format. This upgrade is also a vital part of supporting the GIS component for SITS by providing a scalable infrastructure that can adapt to the requirements of its stakeholders quickly.	The 2023/24 deliverables include delivering playbook GIS upgrade, integrating with SITS requirement and improving the user interface to incorporate new infrastructure requirements. Commitments: None.

Assets

The assets reporting category contains 15 projects of 12 renewals and three enhancements; where the primary purpose is the management of any (fixed and mobile) asset data or the installation or replacement of technology assets.

Projects Included	Lifecycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
Bus and Coach Service Delivery Technology Improvement Programme (BCSD TIP) - Asset Fault Reporting	Option Selection	New and improved process for reporting asset faults	The project was initiated in September 2022, and once the team was successfully mobilised, the functional and non-functional requirements were gathered.	Detailed design and delivery of a new asset fault reporting mechanism for Bus and Coach Service Delivery staff. Commitments: £0.02m for anticipated delivery commitments in 2024/25.
BCSD TIP - Device Refresh	Option Selection	New devices for Bus Operations colleagues and an improved support model	70 tablets and phone replacements were purchased prior to reaching their end of support. InTune migration was also delivered, which eliminates all OPEX costs for BCSD devices.	Delivery of a strategic support model for BCSD staff devices and the purchase of additional devices for BCSD on-street staff. Commitments: £0.2m for delivery commitments in 2023/24.
BCSD TIP - Network Renewal	Detailed Design	Improved Network connectivity/Wi-Fi across Bus Stations and Victoria Coach Station	Completion of Stage Gate 1 and 2. Initiation of detailed design for five trial Bus stations (Shepherds Bush, Canada Water, Stratford Regional, Vauxhall and Addington Village).	The 2023/24 deliverables include: completion of detailed design and delivery of the network connectivity upgrade at five trial bus station sites; Surveys and initiation of detailed design and delivery of the network upgrade for the remaining 31 sites. Delivery for the remaining stations will occur in 2024/25; whilst ensuring integration of the One London, operational and Body worn camera networks. Commitments: £1.8m for delivery commitments in 2023/24 and £1.1m for anticipated delivery commitments in 2024/25.
CPOS Device Refresh	Option Selection	New devices for operational staff including associated support	Device procurement and agreement of transfer of Intune data; with option selection being made in December 2022.	Delivery and 'Go-Live' of the integrated Intune system as well as device distribution, and project closure. Commitments: £1m for delivery commitments in 2023/24.
CPOS Printer Refresh	Pre-Initiation	Printer hardware refresh	N/A – This is a new project to initiate in 2024/25	New project due to be initiated in 2024/25. Further details will be set out in next annual submission to the committee.
Surface Body Worn Video Tech Refresh	Pre-Initiation	Refreshing Body Worn Video Camera estate	N/A – This is a new project to initiate in 2024/25	New project due to be initiated in 2024/25 to commence re-let of the current short-term contract that is due to expire in May 2026.
Asset Management Information System (AMIS)	Delivery	Upgraded software and integration of data	Continued with delivery of project and migrated majority of asset information onto new consolidated asset management system.	Complete delivery of project in 2023/24. Commitments: None.
Connect	Delivery	Addressing Obsolescence; Upgraded software and hardware with associated maintenance and operations	The Connect system is an operational network which provides communication services between LU control centres, stations, train drivers and station staff and links a wide range of applications critical to the operation of the network. To address obsolescence and risk of asset failure, planned delivery included completing 100 radio hardware unit replacements at LU stations by March 2023. This was achieved ahead of target in November 2022; ensuring we can continue to run a secure and supported operational network.	Completion of next state of Connect Programme, radio unit delivery and other hardware and software updates. Commitments: £8.5m for delivery commitments in 2024/25

Connectivity - Wi-Fi: LU Stations, Assets Train Crew)	Pre-Initiation	Improve connectivity across the LU Operational estate.	N/A – This is a new project for 2023/24	The 2023/24 and 2024/25 deliverables include scope definition, option selection and agreement on a delivery approach to ensure improved connectivity (Wi-Fi / 5G etc) at Train Crew Accommodations, Stations and Depots. Commitments: None.
Digital Programme (Data and Digital)	Outcome Definition	Delivery of projects to support the programme	N/A – This is a new project for 2023/24	Issue a tender pack for a new Decision Support system in September 2023, and procurement of specialist consultant resources to support design and delivery of the long-term digital strategy. In 2024/25 the initial stages of the digital programme will be initiated, to improve our asset datasets condition. Commitments: None.
Connectivity Asset Renewal (CAR) Programme	Option Selection	A new operational network to replace the Connect network and address obsolescence.	Initial scoping works and early market engagement were undertaken.	No Authority request is sought as part of this paper. The project will seek Authority separately following an IAR at the end of 2023. Commitments: None.
Staff Devices - Phase 2	Option Selection	Addressing obsolescence. 4,000 new devices and software updates	This was a new project that was initiated in 2022/23.	Delivering approximately 4,000 replacement devices to operational staff. Commitments: None.
Maximo Mobile Upgrade/Replacement	Pre-Initiation	Mobile functionality to support our new Asset Management system, allowing our staff to remotely assess, record and act upon asset data	This is a new project that has been initiated for 2023/24.	The 2023/24 and 2024/25 deliverables will include scope definition, agreement of a delivery approach and undertaking procurement activities. Commitments: None.
Performance Data Warehousing (PDW)	Option Selection	Replacement data warehouse	This was a new project that was initiated in 2022/23.	In 2023/24, there will be a three-month pause until Performance, Administration and Continuous Improvement (PACI) resource is available; following which key deliverables will include business case/technical requirements gathering and validation, option selection, design requirements and solution agreement. In 2024/25 the deliverables will cover: development and testing of the new PDW system with data migration from other platforms, Reporting creation testing and User Acceptance testing and validation, and early life support of the new PDW system. Commitments: None.
RailSys	Concept Design	Software upgrade and automation of some manual processes	Awarded a contract for the delivery of key renewals work on TfL's access planning system. Delivery is now underway and due to be complete in 2024.	Delivery of the new access planning system which will improve our ability to plan and co-ordinate works on the LU network - and improve reporting. Delivery and project close will conclude in March 2025. Commitments: £0.73m delivery commitments for 2024/25 within current contract.

Enforcement and Security

The enforcement and security category contains 14 projects of five renewals and nine enhancements; where the primary purpose is the enforcement of regulations e.g., fares and traffic orders or the security of our passengers, people or property.

Projects	Life Cycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
CPOS ECOS	Delivery	New mobile application and support model	Taxi and Private Hire mobile app developed in November 2022. The app is developed to work with new Taxi Operating Licence Application software which is scheduled to be released in June 2023 and provide on street access to key licensing information.	The 2023/24 deliverables include development and Go-live for CPOS operational officers to have mobile access to the following areas by February 2024: TPH appeals, Rail revenue inspection, Transport safety enforcement, and Prosecutions & Penalty fare processes. Throughout 2024/25 the app will cover Service Request Gates and Workforce Management. Commitments: None.
CPOS Data Futures	Option Selection	New software system	In January 2023, agreement was made to change and reprioritise the data sources within the CPOS Data Hub; and in March a new interim CPOS Data Strategy, plus the list of data sources were approved.	Deliverables include development of the CPOS Data Hub by adding data feeds throughout 2023/24 and 2024/25 and commence development of (2023/24) and implement (2024/25) a replacement reporting solution for internal /external stakeholders in by December 2024. Commitments: None.
OSS - Body Worn Video camera (BWV) - Phase 2	Delivery	Additional body cameras rolled out to staff	Risk-based analysis was undertaken to inform which teams are at risk of work-related violence and aggression (WVA) and should be in scope of the roll out. These staff have all been consulted with regarding the use of BWV; and cameras provided to those where it was thought the camera would help to reduce this risk (approx. 270 BWVs were delivered which provided 11 teams across the business with access).	The 2023/24 deliverables will include: 1) options analysis for the alternative camera check-out to establish a method for 'checking out' a body worn video camera that does not require the use of their staff Oyster card (in case they do not have it with them). The project is not required to deliver the solution but provide to BAU team. 2) delivery of a system that can automatically process and label video footage (Auto-tagging) which is currently done manually and is very time consuming. Commitments: None.
OSS Pan TfL - WVA Case Management and OSS Pan TfL - WVA Reporting	Outcome Definition	New Case Management system and method for staff to report incidents of WVA.	Outcome requirements drafted and signed off, As-is requirements gathered and awaiting sign off (WVA Reporting) / signed off (Case Management) however the projects were paused in September 2022 in line with TfL's managed decline financial situation.	The 2023/24 deliverables include sign-off of the 'as-is' and 'to-be' requirements to agree the scope of project and what is required. The Case Management options will also be assessed, and the business case developed before proceeding through option selection. In 2024/25 there will be vital Commercial activity depending on the option chosen; to amend an existing contract or go to market, before purchasing and bringing the systems into use. Commitments: None.
OSS Emergency Communication Devices (ECD) Phase 1	Delivery	Roll out of devices to all staff at risk of WVA.	A contract was signed with the chosen supplier in 2022/23 under the G-Cloud Framework. The project also completed concept design and has delivered 192 ECDs to all areas of the Business within the Phase 1 scope.	The 2023/24 deliverables will include delivery of the remaining 300 ECDs before closing the project. Commitments: None.

OSS Emergency Communication Devices Phase 2	Outcome Definition	Future proofed solution at TfL for emergency communications for all staff at risk of WVA.	Requirements gathering workshops with key stakeholders were held and outcome requirements successfully signed off. Collection of user requirements has also now commenced.	The 2023/24 deliverables will include finalising the Requirements gathering, development of solution options, business case and options development and 2024/25 will involve the option selection, procurement and delivery of this. Commitments: None.
Deployable Enforcement Cameras (DEC) - Phase 1	Delivery	Camera assets and operational use	42 Deployable enforcement cameras were introduced during 2022/23.	Project is closing but will be spending £0.01m to cover remaining licensing and support costs in 2023/24. Commitments: £0.01m for delivery commitments in 2023/24.
Deployable Enforcement Cameras (DEC) - Phase 2	Delivery	Camera assets, operational use and support model	By the end of March 2023, 26 sites were installed. Delivery on site fell short of target owing to more lamp columns than anticipated failing structural surveys which resulted in additional structural work or alternative sites needing to be located to ensure the structural support is sufficient for mounting cameras onto. A new provider for column structural surveys was sourced, additionally benefitting TfL more widely.	DEC cameras to be installed at 300 sites throughout 2023/24 which will include compliance, site and structural surveys. The spend scheduled for 2024/25 is mainly for the support, maintenance and any remedial work for previously installed cameras. Commitments: £3.4m committed spend in 2024/25 and £0.7m in 2025/26.
Surface Workforce Management (SWFM)	Option Selection	Workforce management tool / solution	The project was transferred from the former Surface Technology programme to T&D Enterprise Resource Planning (ERP)	Future delivery and Authority request was included within the T&D annual submission in March 2023.
BCSD TIP - Station Security	Outcome Definition	New Tool to provide visibility of on-street staff activities	The project was restarted in April 2023 - issues and prioritisation were completed, along with a revision of scope and objectives setting.	The 2023/24 deliverables include Phase 1 option selection and detailed design for a new station security check process and incident reporting system. The delivery of which will be undertaken in 2024/25; as well as starting delivery for an E-Log Book and initiating Phase 2 - which will focus on Customer safety and security. Commitments: None
BCSD TIP - Workforce Implementation	Pre-Initiation	Workforce management tool / solution	New project to initiate in 2024/25	New project due to be initiated in 2024/25. Further details will be set out in next annual submission to the committee.
BCSD TIP - Workforce Demand Planning	Pre-Initiation	A new tool to enable resource deployment and service delivery oversight	New project to initiate in 2024/25	New project due to be initiated in 2024/25. Further details will be set out in next annual submission to the committee.
Revenue Protection ATU, Card Clash, Code 80 and ITAP	ITAP 4 – Pre-Initiation	System changes and upgrades	Completed delivery of ITAP3 and several changes were made to revenue protection tools across back-office systems.	The 2023/24 deliverables will include delivery of the next stage of the ITAP platform, including design and implementation, with completion of ITAP 4 works due in March 2025. Commitments: None.
LU Cyber Security Improvement Project (NIS)	Option Selection	Roadmap	A tender was issued, evaluated and a preferred supplier for project was appointed.	The 2023/24 deliverables include development of detailed plans for meeting cyber security requirements across relevant LU assets and implementing options towards achieving Cyber Security Compliance. Commitments: £0.8m committed spend in 2023/24.
SSTIP	Delivery	Safety and Security	Delivered critical incident management capability at 100 stations and continued to upgrade CCTV estate across our network,	In 2023/24 critical connectivity upgrades to TfL's CCTV estate will be delivered to improve our GDPR compliance and our ability to respond to

			resolving obsolescence and improving data transfer with our strategic partners, such as the British Transport Police.	major incidents. The critical incident management installations will continue, and all CCTV work will be complete in 2024/25. Commitments: None.
--	--	--	---	--

Micromobility

The micromobility category contains five projects of three renewals and two enhancements that support the delivery of the TfL Micro-Mobility Rental Strategy (bikes, scooters and last-mile transit).

Projects	Life Cycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
E-Scooter Phase 2	Concept Design	New contracts for e-scooter rental operators	Procurement began for the E-scooter phase 2 contracts, to extend the E-scooter trial until May 2024 in line with current legislation.	The 2023/24 deliverables include contract award and mobilisation of the E-scooter Phase 2 contracts. Commitments: None. As this is an OPEX only contract, there will be no capex commitments after the award.
Cycle Hire Re-let - 2025	Concept Design	New assets, new operating contract, new back-office technology solution	The requirements, business case and procurement strategy were all developed throughout 2022/23.	The 2023/24 deliverables include undertaking the competitive dialogue process with shortlisted bidders as part of the procurement process; followed by contract award and transitioning Cycle Hire services to new supplier in 2024/25. Commitments: None. As this is an OPEX only contract, there will be no capex commitments after the award.
Micro-Mobility Data Management Solution Phase 1 and 2	Concept Design (Phase 1) Outcome Definition (Phase 2)	Supporting data for E-scooter trial	Phase 1 (a short-term solution to support E-Scooter trial) was successfully delivered, and Phase 2 was commenced.	The 2023/24 deliverables include exploring options, finalising a recommendation and commencing design. The delivery will begin and continue throughout 2024/25. Commitments: £0.1m committed spend in 2024/25 and £0.1m in 2025/26.
Cycle Hire Expansion	Delivery	Additional cycle hire docking stations across London	The Cycle Hire Southwark Expansion element of the project (which was fully funded by Southwark Council) was completed, providing seven new docking stations in Bermondsey and Walworth.	The 2023/24 deliverables include setting up a project to provide investment into the existing Cycle Hire scheme ahead of the Cycle Hire Re-let in 2025 (options include carrying out an in-dock charging trial or purchasing more e-bikes in coordination with the Streets, Bus and RSS Renewals portfolio). This includes resourcing, gathering requirements, developing the business case, deciding on a route to market, and starting delivery, which will continue into 2024/25. Commitments: £1.0m committed spend in 2023/24 for delivery of e-bikes.
Cycle Hire Modernise and Electrify	Delivery	500 e-bikes and a new back-office system	Launched the new back-office system and delivered 500 e-bikes into the Cycle Hire scheme.	The project will be completing delivery of the back-office upgrade and e-bikes within 2023/24. Commitments: Approx. £2.2m is committed for 2023/24.
Non-Docked Procurement	Outcome Definition	Coordinated approach to managing non-docked ('dockless') micromobility rental, such as e-bikes and e-scooters	This is a new project that was initiated at the start of 2023/24.	The 2023/24 deliverables will initially focus on gathering outcome requirements, engaging with boroughs and third parties, market research analysis, and development and appraisal of complex business case options to inform the preferred option for the project. Late 2023/24 and 2024/25 deliverables will focus on implementing the preferred option. Commitments: None.

Network Management

The Network Management category contains 16 projects of 13 renewals and three enhancements where the primary purpose is the management of our road network.

Projects	Life Cycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
Tunnels Controls System	Outcome Definition	New system for Tunnel incident management to replace expiring contract	This was a new project that was initiated in 2022/23.	The deliverables throughout 2023/24 and 2024/25 include development of outcome and technical requirements, options, business case, procurement strategy and preparation for tender. Commitments: None.
TOME (Traffic Order Management Enforcement Solution)	Outcome Definition	New software solution, support model and training	Completion of the Traffic Order Landscape paper which provides details for the key stakeholders on the high-level processes and current solutions and infrastructure; prior to determining the scope of the project and the subsequent options analysis.	The key activities in 2023/24 include completion of scope and options selection, the requirements build and procurement activities by December 2023. 2024/25 will cover launch of the new solution and project closure. Commitments: None.
UTC Storage Refresh	Delivery	Hardware update replacing critical storage servers to ensure continuation of system	A prototype was completed in December 2022 and migration of the data storage to the new solution started in February 2023, completion planned for August 2023.	The 2023/24 deliverables include completion of the platform migration and project closure by September 2023. Commitments: None.
Passenger Incident Management Systems	Outcome Definition	Renewing the capability for our control centres to manage passenger incidents effectively, including sharing information with third parties	This was a new project that was initiated in 2022/23, and a Market Survey Questionnaire was issued in March 2023.	The 2023/24 deliverables include agreement of requirements, development of the procurement strategy and completion of the option selection stage. In 2024/25 expected activity includes completing concept design and award a contract to commence delivery. Commitments: None.
BICCS (Bus Integrated Command and Control System) - Minor Capital Interventions (MCI)	Delivery	Replacing bus incident communications system	The BICCS system was successfully delivered to the NMCC in November 2022.	There is one outstanding feature to be delivered in 2023/24 ahead of project close. Commitments: None.
Remote Monitoring to NGRM	Option Selection (2A)	New traffic signals hardware and connectivity	Option Selection was completed in August 2022. Since then, two contracts have been awarded for software development of the fault monitoring system.	The 2023/24 and 2024/25 deliverables include software development and procurement activities to award contracts for equipment purchase and to deliver connectivity to 881 traffic signal sites. The delivery of both will occur in 2024/25. Commitments: £5.5m committed spend in 2024/25 and £0.4m in 2025/26.
NMCC Support Systems - Java replacement Discovery	Pre-Initiation	Migration and upgrade of assets	N/A Project not yet started.	The 2023/24 deliverables include: resource allocation, project Initiation, options analysis and recommendation, development of project documentation and commencement of delivery. The project is due to complete delivery in 2024/25. Commitments: None.

NMCC Support Systems - London Works Stabilisation	Concept Design	Upgrade assets and implementation of monitoring capability	This was a new project that was initiated in 2022/23 and the scoping and design was commenced.	In 2023/24 it is expected that the project will be delivered and completed before the system goes out of support; with deliverables including: requirements, designs, delivery, testing, migration of users to the new system and decommissioning the legacy system and infrastructure. Commitments: None.
NMCC Support Systems - Windows 10 Discovery feasibility	Pre-Initiation	Migration and upgrade assets	N/A Project not yet started.	The 2023/24 deliverables include: resource allocation, project Initiation, requirements setting, options analysis and recommendation, development of project documentation and commencement of delivery. It is expected that the project will complete delivery in 2024/25. Commitments: None.
NIS Compliance	Delivery	Improving cyber security resilience of the critical systems needed to operate the road network, to meet the NIS regulations.	The project released efficiency savings of £2.5m in October 2022, captured requirements and procured penetration tests which were completed in March 2023.	The 2023/24 deliverables include: reviewing the penetration test results, providing cyber training for users, upgrading the system firewalls, undertaking cyber security assessment and completion of the project by summer 2023. Commitments: £0.2m committed spend in 2023/24.
TfL's Video Management System (TVMS)	Concept Design	Renewal of contract for software system used in NMCC and more widely across TfL to view and operate CCTV cameras owned by TfL and our partner organisations	In September 2022/23 the business case was approved in line with completion of option selection and the procurement strategy; followed by the evaluation strategy approval in January 2023, and a successful assurance review in March 2023.	The market readiness gate and publication of an Invitation to Tender (ITT) were achieved in April 2023; activities for the remainder of 2023/24 will cover the procurement, including suppliers' questions and dialogue. In 2024/25 the activities will include: completion of the concept design stage, contract award governance, drafting and agreement of the contract, supplier mobilisation and completion of the detailed design stage by October 2024. Commitments: None.
ESRI	Pre-Initiation	Replacement of existing contract for ESRI software, applications and services	This is a new project that is to be initiated in 2023/24.	The 2023/24 deliverables will include project initiation and options analysis to determine the requirements, before a decision is made on the procurement route, and a solution is due to be implemented in 2024/25. Commitments: None.
SAFE Phase 2 Bulletin Board	Option Selection	Updated software to improve cyber security of Surface Transport Incident Management System	The project successfully passed the Gate 1 in August 2022.	The 2023/24 deliverables include the contract award, completion of option selection, and delivery before the project is closed by the end of the financial year. Commitments: None.
Digital Images Video Analytical Technology (DIVAT)	Option Selection	Development of strategy and PoC for a pan-TfL CCTV solution	In 2022/23 delivery of the customer portal commenced, enabling works for the Proof of Concept were completed, the DIVAT strategy was developed, and the business case was approved.	In 2023/24 several suppliers will be working in collaboration to develop and deliver a trial technical solution to overcome CCTV issues. Commitments: £0.6m committed spend in 2023/24.

Public Transport

The Public Transport category contains 11 projects of nine renewals and two enhancements where the primary purpose is to ensure continued safety, operation and reliability of our public transport network.

Projects	Life Cycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
Future Bus Systems 2 and 3	Option Selection	Renewal of existing bus contracts management system	The project successfully completed requirements gathering and began option analysis.	The 2023/24 deliverables include option selection, supplier engagement and issuing an Invitation to Tender, evaluating the bids and awarding a contract by March 2024. In 2024/25 the detailed design will be carried out with project go-live planned for spring 2025. Commitments: £1.4m committed spend in 2024/25 and £0.7m in 2025/26.
BCSD TIP - Financial & Commercial	Pre-Initiation	A system to enable financial efficiencies and provide commercial opportunities	This is a new project that is to be initiated in 2023/24.	The 2023/24 deliverables include project initiation, feasibility and option selection by November 2023 and commencing detailed design by March 2023. Completion of which, will occur in 2024/25 prior to implementation. Commitments: None
London Cable Car Passenger Communication Systems (LCC PCS)	Delivery	Updated Passenger Communications System to replace end of life, unsupported system	In December 2022, a contract variation was awarded to Mace to deliver the Passenger Communication System and the detailed design stage was also completed.	The 2023/24 deliverables will include the third-party supplier (Mace) milestone payment for handover of the Passenger Communications System as per the agreement in the contract. Commitments: £0.54m committed spend in 2023/24.
Common Data Repository (CDR) Removal	Outcome Definition	Decommission of obsolete database	This is a new project that is to be initiated in 2023/24	Key deliverables for 2024/25 will include initiating CDR removal which will decommission an obsolete database from Surface Technology systems. Commitments: None.
ATS DaR Booking and Scheduling solution	Delivery	New booking and scheduling system to replace old system	In November 2022 a contract was awarded to a new supplier 'Via' and the concept design stage was also completed. Milestone 1 ('Via' drafting documentation for new system) was achieved in early 2023.	The 2023/24 deliverables include design and delivery being undertaken by supplier 'Via' (Milestones 2 – 7 which cover delivery-based activities) prior to project closure in 2024/25. Commitments: £0.9m committed spend in 2023/24 and £0.2m in 2024/25.
Pan-TfL Booking System and LCC Retail Solution	Pre-Initiation	Feasibility report of consolidating the booking systems for the London Transport Museum, Cable Car and River services once the current services expire.	Feasibility work began in 2022/23 however the project was then paused in summer 2022 in line with TfL's managed decline financial situation.	This project will be restarted in 2023/24. Commitments: None.
Countdown 3	Concept Design	Procure new support contract for supply, installation	In 2022/23 initial supplier engagement was undertaken, the procurement strategy was revised to enhance value for money, the evaluation strategy and other tender documents were	The 2023/24 deliverables include evaluating the bids and awarding the contract by December 2023, with mobilisation and detailed design being

		and maintenance of countdown signs and communications upgrade to existing signs	developed. The project successfully passed the Market Readiness gate, and a supplier questionnaire was issued in March 2023.	carried out by the end of the financial year. In 2024/25 the project will assess service readiness and commence operations. Commitments: £3.1m committed spend in 2024/25 and £0.4m in 2025/26 for delivery.
iBus2	Concept Design	Upgrade to current iBus system including assets and continuation of service	The procurement process continued throughout 2022/23 with a competitive dialogue ahead of the Invitation to Submit a Final Tender being released in February 2023.	The 2023/24 deliverables include evaluating the bids, carrying out an IAR and governance activities and awarding a contract award. In 2024/25, the supplier will be mobilised, and detailed design and testing will be completed ahead of operational commencement in autumn 2025. Commitments: £19.4m committed spend in 2024/25, £35.8m in 2025/26, £39.1m in 2026/27, and £0.6m in 2027/28.
Bus Business Intelligence Reporting (BBIR)	Outcome Definition / Option Selection	New asset and replacement of existing reporting tool for extracting bus data	The project was initiated in November 2022 with an options development report produced for workstream 1 in March 2023. Stakeholders then agreed options to take forward to the supplier, the commercial engagement strategy was endorsed, and initial engagement began with the incumbent supplier.	The 2023/24 deliverables include payment to the existing supplier to stabilise the system, develop options for the future (following iBus 2 delivery). A contract variation is due to be completed in July 2023 to provide an interim solution and enhancement of the current provision until iBus 2 is completed in 2027. In 2024/25 a proof of concept will be developed and will begin working in parallel to provide the seamless transition from iBus to iBus 2. Commitments: £0.5m committed spend in 2024/25.
Ticket Vending Machine (TVM) Replacement	Option Selection	Replacement of the DLR TVM Fleet	This is a new project that is to be transferred from the Public Transport Programme and was initiated in 2019 and is being transferred to the Technology Portfolio in 2023/24. Technical Requirements were finalised in 2022, and surveys were completed to allow for the Technical Requirements and core Pathway documentation initiated ready for Option selection.	The 2023/24 deliverables include development of the procurement strategy, a competitive tender for the equipment supplier and supplier selection; with installation works to begin in 2023/24 and continuing throughout 2024/25. Commitments: £0.9m in 2023/24, £2.5m in 2024/25, and £0.4m in 2025/26.
Digital Tram Radio Implementation	Feasibility	Replacement of tram cab radios to meet new licence conditions	This is a new project that was initiated in 2022/23 within the Public Transport Programme and is being delivered in collaboration with T&D. The main driver for the project is ensure tram radio equipment complies with Ofcom's new radio licence conditions regarding electromagnetic field (EMF) exposure, but also to replace the existing radio system which is nearing its life expiry. Project requirements were established in 2022/23 and a study initiated to consider whether the digital mobile radio system used on TfL buses could be adapted for tram use.	The 2023/24 deliverables include completing feasibility studies on utilising the Surface Digital Mobile Radio Network (the upgraded system used on London Buses) for the trams (Phase 1) and undertaking a proof-of-concept trial (Phase 2). Detailed design and delivery are anticipated in 2024/25 provided that the proposed system is deemed workable; if not, the project will need to return to earlier stages and consider alternative options for meeting the licence conditions. Commitments: None.

SITS

The SITS category contains seven projects of five renewals and two enhancements which support the delivery of Surface Intelligent Transport Systems programme; and aims to renew and enhance systems used by Network Management, delivering faster incident detection and response, which will increase highway capacity and provide the tools to take a multi modal approach to managing the road network. This forms a separate category from Network Management to allow for specific reporting on combined SITS projects.

Projects	Life Cycle Stage	Output	2022/23 Deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
Real Time Optimiser (RTO)	Delivery	Replacement of assets to enhance the automatic management of London's traffic signals using real time data	80 percent of the RTO system development backlog was completed and software updates to the NMCC 'living lab' (test sites) were delivered.	Core development of the RTO system will complete by December 2023 and the Go-Live and migration to the new system will commence by March 2024. Further enhancements to the system are planned for 2024/25. Commitments: £1.3m committed spend in 2024/25, £0.7m in 2025/26, £0.6m in 2026/27 and £0.5m in 2027/28.
Outcast Decommissioning (RTO)	Pre-Initiation	Decommission of Outcast	New project to initiate in 2024/25	New project due to be initiated in 2024/25. Further details will be set out in next annual submission to the committee.
Common Operational View (COV) Incident Management System (IMS).	Delivery	Replacement of our existing incident management system	Successfully completed all coding required for the final release of Phase 1 in February 2023, achieving Tier 2 Milestone.	The 2023/24 deliverables include completing the build of COV IMS and the final features (RTO and Video Management System (VMS) interfaces plus the Decision Support Service (DSS) feature. The old system is due to be decommissioned by June 2023 following the Go-Live on the 16 April 2023. Commitments: £3.9m committed spend in 2023/24.
Data Service Hub (DSH)	Delivery	Centralisation of data required by SITS into one data storage hub	Urban Traffic Controller (UTC) data was successfully transferred to the new platform; and Traffic signal data reports can now be provided to the NMCC to report faults on network.	In 2023/24 Automatic Number Plate Recognition (ANPR) and iBus data will be transferred from the existing platform to DSH. Other deliverables include retendering for a Data as a Service feed to support real time demand. In 2024/25 data for iBus and Inrix (journey time data) will be transferred from one platform to another, to support the traffic demand data that the SITS service relies on; and retendering the contract for Data as a Service to become a live feed. Commitments: None.
Functional Changes MCI	Pre-Initiation	SITS system updates as required	New project to initiate in 2024/25	New project due to be initiated in 2024/25. Further details will be set out in next annual submission to the committee.
Data Roadmap	Option Selection	Providing real-time data to NMCC on all road users with new sensors	Project passed outcome definition stage to develop a short list of options.	The 2023/24 deliverables include completing the option selection stage and awarding a contract. In 2024/25 the project is due to start the commercial procurement process and project delivery. Commitments: £8.0m committed spend in 2024/25 and £3.6m in 2025/26.
Predictive	Option Selection	New system for NMCC to predict impact of incidents and recommended mitigation	The project was paused in summer 2022 in line with TfL's managed decline financial situation.	The 2023/24 deliverables include re-starting the project, completing the option selection stage and commencing a tender process, before delivery begins in 2024/25. Commitments: £9.7m committed spend in 2024/25 and £13.0m in 2025/26.

General Operations and Pipeline

The general operations category contains six renewals projects where the aim is to ensure that TfL's service is up to date, and they are not included in the other categories. The Pipeline category includes a work bank of potential future projects which are currently split by LU Technology and Surface Technology Renewals / Enhancements.

Project /Programme and Output	Lifecycle Stage	Output	Key 2022/23 deliverables	Key Activities for 2023/24 to 2024/25 and commitments in future years
Electronic Incident Reporting Form (EIRF) (Replacement) / Customer Performance Information Database (CUPID)	Option Selection	Power Apps for EIRF and CUPID systems	This was a new project that was initiated in 2022/23 and scoping was commenced.	<p>The 2023/24 deliverables include analysis and requirements setting for the EIRF/CUPID model whilst identifying integration methods to use with PDW, NACHS and AMIS, and completion of option selection and concept design ahead of undertaking detailed design in 2024/25.</p> <p>In 2024/25 there will also be the implementation of a new risk reporting application and completion of the EIRF project; delivering it to all systems and devices across the network with approval from key stakeholders.</p> <p>Commitments: None.</p>
Sentinel	Pre-Initiation	Renewal of track working competence systems to maintenance staff	This is a new project that is to be initiated in 2023/24.	<p>The 2023/24 deliverables include project initiation and commencing procurement activity to align with Network Rail's replacement of Sentinel system; prior to supporting the delivery in 2024/25.</p> <p>Commitments: None.</p>
LU Skills Development (LUSD) Digital Learning Strategy – Tech Enablers	Outcome Definition	Streamlining of remote learning and training tools to improve staff skills and capability	This was a new project that was initiated in 2022/23.	<p>The 2023/24 deliverables include implementing tools for operational staff to complete digital assessments and online learning; and improve efficiency by reducing travel requirements. In 2024/25 the project will build an optimal operating environment for Live Online learning and for digital tools in the classroom, whilst carrying out a review and refresh of products.</p> <p>Commitments: None.</p>
Nominal Accumulated Customer Hours (NACHS) 5G	Delivery	Revised TfL scorecard tables to inform Mayor / Public etc.	The majority of the NACHS upgrade was delivered in 2022/23.	The project was completed in Q1 of 2023/24.
Competency Management System (CMS)	Delivery	New system for train operators	Completed design and implementation of a new competency management system for train operators and rolled-out the new system to the Piccadilly Line operations.	<p>The project has been delivered and will be rolled-out to other lines in future years.</p> <p>Commitments: £0.2m committed spend in 2024/25, £0.2m in 2025/26 and £0.2m in 2026/27 for licensing support costs.</p>
Operations CMS – Phase 3	Pre-Initiation	Roll out of new system for train operators	This is a new project that is to be initiated in 2023/24.	<p>The 2023/24 deliverables will include a feasibility study into the roll out of the CMS to other operational areas within the organisation and the first stage of a roll out if appropriate.</p> <p>Commitments: None.</p>
Pipeline work bank– Surface Renewals	Pre-Initiation	Early-stage development of pipeline renewals	N/A – Work bank was initiated in April 2023.	Initiate the development of Surface technology renewals projects. The current renewals work bank for 2023/24 includes Digital Evidence Sharing, DTES/PES Options Analysis, Pan-TfL Body worn Cameras Phase 3, Rail Control Centre Technology Review, Minor Capital Interventions, DaR Depots Network Renewal, Cycle Hire App Fixes, Digital Signs Redevelopment, Keypoints Replacement, Left Luggage Re-Procurement, DLR Passenger Demand Hub and Journey Time Metrics, DAISY Screen Replacement, DLR Cyber Security 2022/23, Track

				<p>Condition Monitoring using instrumented tram, Resilience Systems and Data (Asset and Ops Review).</p> <p>Commitments: None.</p>
Pipeline work bank – Surface Enhancements	Pre-Initiation	Early-stage development of pipeline enhancements	N/A – Work bank was initiated in April 2023.	<p>Initiate the development of Surface technology enhancements projects. The current enhancements work bank for 2023/24 includes TPH Assessment Centre Expansion, Pan- London CCTV (POC and full project), Integrated Freight Management Feasibility, DIVAT Extension, Digital Sentiment Analysis, Women's Safety Innovation Scale Up, Micro-Mobility Digital Customer Experience, London Cable Car (LCC) Gateline Removal, LCC Passenger Comms Phase 2 (Infotainment), Pan-TfL Retail System, Bus Disruptions and Diversions, Bus Passenger Demand (Future of BODS).</p> <p>Commitments: None.</p>
Pipeline work bank - LU	Pre-Initiation	Early-stage development of London Underground Technology projects	N/A – Projects within the work bank not yet initiated.	<p>Initiate the development of London Underground technology projects. The current work bank for 2023/24 and 2024/25 includes: Planning Process Optimisation, Post-AMIS Eco-System Alignment, Hardware Replacement for BWV cameras, Asset Lifecycle Information Automation.</p>

Appendix 2

iBus2 Contract Award Briefing Paper

1 Summary

- 1.1 The purpose of this paper is to brief the Committee on the iBus2 project (EFC £141m) and the procurement process for contract award, which includes the development, supply, installation, and maintenance of an Automatic Vehicle Location (AVL) system for the London bus network consisting of a back-office system, on-vehicle equipment and performance management system.
- 1.2 It is anticipated that approval of Procurement Authority to enter into the contracts will be required after the 5 October 2023 meeting of the Committee and will therefore be sought under Chair's Action.

2 Background

- 2.1 The existing iBus system provides real time passenger information, vehicle location (supporting selected bus priority at junctions and low bridge alarms), service control functionality, an emergency response service via the Network Management Control Centre (NMCC), voice radio integration, an interface for ticketing and the performance management system for London's buses.
- 2.2 The iBus system is the data collection and calculation engine behind the mileage and reliability performance payments to the bus operating companies (BOCs) of approximately £2bn annually. From a passenger facing perspective, the iBus system delivers on-bus next stop and destination real time information and calculates all of the live bus arrival predictions that are sent through the Countdown feed to TfL's website, approximately 3,000 on-street signs, digital screens and via a public feed to third parties to support over 60 smartphone apps.
- 2.3 The iBus system supports:
 - (a) 8,770 buses fitted with iBus equipment, running approximately 700 bus routes and serving over 19,000 bus stops across Greater London;
 - (b) 78 bus garages; operated by 19 bus operators, responsible for running and maintaining the bus service schedule;
 - (c) Over 40 bus operator service control centres, with workstations featuring the ability to track buses in real time and contact buses by voice radio; and
 - (d) iBus vehicle location functionality for London River Services and London Trams (around 50 boats/trams combined).
- 2.4 iBus2 will ensure that the reliability improvements associated with iBus performance management and the reduction in Excess Wait Time scores are maintained. iBus2 will also enable the maintenance of real-time passenger information which has a high willingness to pay value and is a key measure in the Mayor's Transport Strategy. Furthermore, iBus2 will enable enhanced information to be delivered to passengers on bus, making the network more accessible and increasing customer satisfaction.
- 2.5 The original iBus contract expired in May 2010, with extensions taking the contract to May 2022 when a final extension was put in place until May 2025, with two optional one-year extensions beyond that point to allow the new iBus2 system to be developed, tested and rolled-out.

3 Procurement Strategy

- 3.1 The iBus2 Services procurement is separated into lots:
 - Lot 1: On-bus Services, which is further separated into:
 - Lot 1A: On-bus Services; and
 - Lot 1B: On-bus Services; and
 - Lot 2: Back Office Services.
- 3.2 Lot 1 (On-bus Services) will cover the provision of services (including supply, installation and maintenance) for the on-board hardware element of iBus2 Services and their integration with the Back Office Services.
- 3.3 Each of Lot 1A (On-bus Services) and Lot 1B (On-bus Services) will account for approximately fifty per cent of the total volume of Vehicles on which TfL requires the On-bus Services to be installed and maintained (which TfL considers will equate to approximately 4,350 Vehicles for Lot 1A (On-bus Services) and 4,500 Vehicles for Lot 1B (On-bus Services)). Lot 1A (On-bus Services) will include Trams while Lot 1B (On-bus Services) will not.
- 3.4 Lot 2 (Back Office Services) will cover the provision of Service Components which have been grouped into logical functions within the Service Requirements and the iBus2 Concept Architecture.
- 3.5 Combined bids are accepted subject to submission requirements. At Invitation to Submit Final Tender (ISFT) Evaluation, TfL will evaluate bidders' individual ISFT Submissions for each lot and any combined bids, and determine the winning Bidder(s), as described in the evaluation methodology.
- 3.6 The iBus2 contract term for all lots is for an initial term of ten years with options to extend for up to ten additional years.
- 3.7 TfL's overall objectives in relation to the iBus2 procurement are:

Financial	Affordability	Deliver the iBus2 Services at or below the Affordability Ceiling to ensure the Services are delivered within TfL's budgetary constraints.
	Performance	Ensure that an appropriate level of performance is contracted for and that the iBus2 Suppliers are sufficiently incentivised to deliver performance.
	Transition and Rollout	Effectively manage the risk and minimise the financial impact of Transition and Rollout, including dual running of the current iBus services.
	Flexibility and Efficiency	Ensure that the Services can grow and constrict with changes in customer demand and that Operational Changes are commissioned in a timely and efficient manner at an appropriate price.
	Value for Money and Savings	Deliver the iBus2 Services in a way that provides value for money to TfL and achieves cost reductions against current costs of running the current iBus services, including via continued identification and realisation of cost reductions during the life of the Contract(s).
Non-Financial	Service Continuity	Deliver the iBus2 Services that secure continuity of service and maintain the major benefits of the current iBus services.
	Performance	Ensure that the Availability of the iBus2 Services can be effectively measured and pro-actively managed to minimise any possible impacts on the delivery and maximise the reliability of bus services.
	Accuracy	Provide accurate information in a timely fashion to TfL and BOCs to ensure that bus services operated by the BOCs can be managed and reported effectively.
	Transition and Rollout	Successfully migrate from the current iBus services to the iBus2 Services whilst minimising disruption to TfL, BOCs and customers.
	Flexibility and Efficiency	Utilise new technology to provide solutions that deliver efficiency, meet the latest business and customer needs and have the flexibility to support changes as requirements and expectations evolve during the life of the Contract(s).
	Customers	Deliver iBus2 Services which enable safe and reliable bus journeys for passengers and provides a common customer experience for Real Time Passenger Information.

3.8 Existing Programme and Project Authority for the iBus2 project was granted in July 2022 by Programmes and Investment Committee and additional Programme and Project Authority is requested within the paper to which this is appended.

4 Assurance

4.1 An Integrated Assurance Review (IAR) was carried out on the procurement in November 2020 and all recommendations were addressed.

4.2 A further IAR will take place before Procurement Authority is sought. This is scheduled for September 2023.

5 Timescales for approval

5.1 It is anticipated that the procurement process will be concluded during October 2023 and the announcement to the market made in November 2023.

5.2 As the next scheduled meetings of the Committee are on 5 October and 6 December 2023, it is proposed that a Chair's Action request will be submitted to Committee in mid-October 2023 that will summarise the outcome of the process and request approval of Procurement Authority.

[page left intentionally blank]

Programmes and Investment Committee

Date: 19 July 2023

Item: London Underground Four Lines Modernisation Programme

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to update the Committee with progress on the delivery of the London Underground (LU) Four Lines Modernisation (4LM) Programme.
- 1.2 The Committee is asked to approve additional unbudgeted Financial Authority to align to the Programme and Project Authority approved by the Committee in July 2022. Existing Financial Authority comprises Budget for 2023/24 and 2023 Business Plan beyond this. Financial Authority is less than Programme and Project Authority due to rephasing of £10m from 2023/24 to later years during budget setting this will need to be managed in the 2024 Business Plan as part of TfL's overall funding position.
- 1.3 Additional Procurement Authority for the Automatic Train Control (ATC) signalling contract is also requested.
- 1.4 A paper is included on Part 2 of the agenda, which contains exempt supplementary information. The information is exempt 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 the meeting.

2 Recommendations

- 2.1 **The Committee is asked to note the paper and the exempt supplementary information on Part 2 of the agenda and:**
 - (b) **approve additional unbudgeted Financial Authority of £10m to fully align this with existing Programme and Project Authority of £5,520m granted in July 2022; and**
 - (c) **approve additional Procurement Authority for the Automatic Train Control signalling contract in the sum requested in the paper on Part 2 of the agenda.**

3 Background

- 3.1 The LU Sub-surface Railway (SSR) consists of four lines – the Metropolitan, District, Hammersmith and City and Circle lines. Pre-pandemic, the four lines carried 1.3 million passengers per day, which represented a quarter of overall LU ridership, and between them they cover over a third of the LU network in terms of

track kilometrage.

- 3.2 The 4LM Programme is in the process of replacing, modernising and integrating life-expired assets (Signalling, Rolling Stock, Track, Power and Depots) on the SSR. This will add capacity (through improved train frequency when demand sufficiently recovers) and improve journey time. The 4LM Programme is the largest single upgrade in the history of the network and one of the most ambitious signalling upgrade programmes in the world. Due to its scale and interoperation with other LU lines, Train Operating Companies and Network Rail, it has a high level of complexity. Although we already have Automatic Train Control on the Victoria, Jubilee, Northern and Central lines on the LU network, the scale and complexity of upgrading the four lines of the SSR in one programme is a global first and is transforming the overall experience for our customers.
- 3.3 The renewal of life-expired assets is essential to ensure we have a reliable asset base which can be maintained at an affordable cost. Future demand and operational costs will determine the higher frequency timetable introduction dates once the capability provided by the new signalling is delivered.
- 3.4 In July 2015, the Board approved Programme and Project Authority of £5,412m to undertake the Programme. Subsequent requests to increase Programme and Project Authority were approved by the Committee in July 2021 and July 2022, bringing the current Programme and Project Authority for the Programme to £5,520m.
- 3.5 The Programme consists of 192 new trains, infrastructure changes, upgrades to three depots, which will maintain the trains, and new signalling (and associated signalling works). With the full introduction of the new fully walk-through, air-conditioned trains in 2016, most of the work is now complete, except for the remaining signalling works on parts of the District and Metropolitan lines.
- 3.6 A contract was awarded in July 2015 to Thales Ground Transportation Systems UK Limited to signal the SSR with an automatic, modern signalling system. Given the scale of the programme, the SSR has been split into sections (known as Signal Migration Areas or SMAs) for the purpose of introducing the new signalling system.
- 3.7 Since the awarding of the signalling contract in July 2015, our forecast completion date for commissioning the new signalling system has been delayed. This is principally owing to challenges with complex software development, testing and commissioning, closure availability and the impact of the coronavirus pandemic.
- 3.8 As previously reported to the Committee in July 2022, delivery of the 4LM Programme continues to be challenging due to its scale and complexity and the Programme continues to face both schedule and cost pressures.

4 Project Update and Challenges

Signalling Go-Live

- 4.1 Since the last update to the Committee in July 2022 the signalling section between Stepney Green and Becontree (SMA6) went live on 15 January 2023. This was quickly followed by commissioning of the signalling section between Dagenham East and Upminster (SMA7) on 19 March 2023.

- 4.2 Following the successful commissioning of SMAs 6 and 7, the remaining areas still to go live with the new signalling system include the Metropolitan Line north of Finchley Road (SMAs 8, 9, 13 and 14) and sections of the District line from Barons Court to Stamford Brook (SMA10) and Fulham Broadway to East Putney (SMA12).
- 4.3 Software development continues for the next SMA to be commissioned, covering the Metropolitan line between Finchley Road and Preston Road (SMA8) (including the interface with Neasden Depot and the Jubilee line).

Software Schedule

- 4.4 Commissioning of SMAs 6 and 7 represented a major achievement for the programme, as it completes the roll out of the new signalling on the Hammersmith and City line, extends the roll out of the new signalling system on the District line to include the entire section between Earl's Court and Upminster and connects the first depot (at Upminster) to the network.
- 4.5 The area now operating under the new signalling contains 62 stations and four complex junctions, including the full Circle and Hammersmith and City lines and the majority of the District line. For comparison purposes, the Jubilee line has 27 stations. This means that two of the four sub-surfaces lines (and around 57 per cent of the Tube network in total) is now operated by an automatic train control signalling system. The signalling migration area map is attached as Appendix 1 and shows the sections of the SSR now operating under the new automatic train control signalling system.
- 4.6 However, despite this progress, there have been ongoing challenges and pressures to the software schedule due to the complexity of the software development required.
- 4.7 Since commissioning SMA5 (in March 2022), the underlying system performance has been good. However, a revenue software uplift was rolled out in November 2022 to address a safety issue identified. This enabled temporary mitigation measures to be removed. This additional software release impacted on the Go Live dates for SMA6 and 7 (which were rescheduled from June 2022 to January 2023 and from November 2022 to March 2023 respectively).
- 4.8 Unrelated to the commissioning of SMA7 (in March 2023), we have identified two significant software issues that are currently being mitigated through additional operational restrictions. The impact of resolving these issues has been assessed and a plan is now in place to address these prior to implementation of the Finchley Road to Preston Road signalling section (SMA08). We are continuing to keep the Office of Rail and Road (ORR) informed and updated of our progress.
- 4.9 SMAs 8 and 9 (Neasden and Harrow) known as the Interoperable Area present the Programme with significant new challenges associated with the integration of the new SSR signalling system with the Jubilee line and Neasden depot train control software and the management of manually driven Chiltern trains. SMA14 (Uxbridge) includes interoperation with the Piccadilly line.
- 4.10 The first system testing of SMA 9 was conducted in February 2023 followed by the latest SMA 8 system test in April 2023. This is a significant step forward for the programme and enables a better understanding of the challenges of these

technically complex areas and therefore the schedule to completion.

- 4.11 An extensive review of the schedule has recently been undertaken and the Programme is currently targeting SMA8 (Finchley Road to Preston Road) to go live in spring 2024 and the final section of signalling, SMA14 (Rayners Lane to Uxbridge) to go live in spring 2025. However, these represent stretching target dates and there remain significant challenges to achieving these.

Challenges

- 4.12 Since July 2022, the Committee has been regularly updated on the continuing challenges facing the programme. While significant effort is focused on mitigating cost increases, there are several factors that could result in an extension of the programme, coupled with an increase to the Estimated Final Cost (EFC).
- 4.13 The key challenges are:
- (a) technical complexity of the software development, particularly in the SMA8, SMA9 and SMA14 interoperable areas;
 - (b) the training requirements to support operation of the interoperable areas, which are expected to be significantly greater than for previous migration areas;
 - (c) reliance on retention of specialist resources; and
 - (d) restricted access opportunities due to sporting and entertainment events at Wembley and the need for closures significantly impacting on a combination of the Metropolitan, the Jubilee line, the Piccadilly line and Chiltern Railway operations.
- 4.14 Closures are required to enable the delivery of the new signalling system. Crucially, they are also used to familiarise Train Operators with the new system. We carefully monitor the use of closures to ensure that each closure is used as efficiently as possible for installation and testing of the new signalling system and infrastructure. Closures are also subject to change to avoid unnecessary closures when plans change.
- 4.15 It is recognised that delivery to the earliest possible schedule, and therefore lowest possible final cost, is imperative but this remains very challenging. The 4LM Programme team is committed to working collaboratively with our signalling supplier Thales to meet the programme challenges, with the aim of delivering the existing full 4LM Programme scope within the existing £5,520m Programme and Project Authority granted by the Committee in July 2022.
- 4.16 The Committee will continue to be kept updated on progress at each meeting going forward. Greater certainty on cost and schedule is expected when the higher-risk development of software on the interoperable sections of the Metropolitan line has been further progressed.

Timetable changes

- 4.17 Since our last update to the Committee in July 2022, a new timetable was successfully introduced in September 2022 as planned. This has enabled a journey time improvement of around five per cent on average on the Circle and

District lines between Monument, Fulham Broadway, Barons Court and Paddington. This adds to the journey time improvements of up to 10 per cent already introduced on the north side of the Circle line through a timetable change in September 2021.

- 4.18 The successful commissioning of SMAs 6 and 7 in January and March 2023 allows further runtime improvements to be included in a planned timetable change in early 2025. This will enable a 5-10 per cent improvement in average journey times between Stepney Green and Upminster.
- 4.19 As a result of the delays to the signalling software roll out, as previously reported to the Committee in July 2022, the timetable frequency improvements cannot be introduced by the dates originally planned in 2015.
- 4.20 We will continue to review the implementation dates for service frequency improvements based upon balancing demand with operational costs, Network Rail timetable introduction dates, operational readiness and the dates at which capability becomes available (noting that further optimisation of the commissioned signalling software is required in certain areas).

Table 1: Movement of planned dates set at Programme and Project Authority in 2015

Timetable Milestones	2015 Planned Date	Current Forecast Date
Runtime Improvements (SMA3)	May 2021	Achieved Sept 2021
Runtime Improvements (SMA5)	N/A	Achieved Sept 2022
Runtime Improvements (SMA7)	N/A	Planned early 2025
30 trains per hour in Central Area	Dec 2021	The implementation dates for service frequency improvements are under review as described above.
32 trains per hour in Central Area*	May 2022	
24 trains per hour Metropolitan Line	Dec 2021	
26 trains per hour Metropolitan Line	Dec 2022	
28 trains per hour Metropolitan Line	May 2023	

*Achievement of a reliable 32tph service level is also dependent on the renewal and remodelling of Aldgate Junction

Signalling Infrastructure Works

- 4.21 Design and installation of the trackside signalling assets continues to support future SMA commissioning.
- 4.22 On the Metropolitan line north of Finchley Road in SMA8 100 per cent, SMA9 94 per cent, SMA13 80 per cent and SMA14 59 per cent of installation is completed. On the sections of the District line from Barons Court to Stamford Brook (SMA10) and Fulham Broadway to East Putney (SMA12) 63 per cent of installation is

completed. We are aiming to complete all installation by March 2024.

- 4.23 Cable pull has been delayed by the impact of the fires at Barking and Upney last year, which destroyed commissioned cables along with additional work required to deliver a compliant radio network in SMAs 6 and 7 for the recent commissioning dates.

Depots

- 4.24 Upgrade works at Ealing Common Depot, bringing new facilities to allow maintenance of the new train stock, were completed in 2022. Along with the already completed upgrade of Upminster Depot, we have now delivered casualty and planned maintenance facilities for the District, Hammersmith and City and Circle line trains.
- 4.25 The Heavy Maintenance Facility upgrade works at Neasden Depot achieved a significant milestone with the Bringing into Use of the Long Shed in July 2022. This has enabled critical door maintenance capabilities for the Depot. The team have also made progress with the procurement process for the remaining packages for the Heavy Lifting Shed and the new Staff Accommodation building. Once complete these facilities will enable the planned overhaul of the new trains and provide much needed welfare facilities for the maintenance staff carrying out these activities.



Figure 2 – S Stock train integration at the new Long Shed at Neasden Depot



Figure 3 – Cable Route installation

Train Fitment

- 4.26 We continue to progress with the fitment of signalling equipment to our fleet of Engineering Vehicles with all 29 Battery Locomotives completed. Both D-Stock Rail Adhesion Trains have been fitted and have undergone dynamic testing. We have commenced the mechanical fitment of the Tamper train with the electrical fitment on target to commence by the end of 2023.

5 Benefits and Value

- 5.1 The introduction of the 192 new trains has delivered 25 per cent of the programme benefits which include:
- (a) the first step up in capacity while maintaining the current train service

frequency as the new trains are longer and carry more passengers;

- (b) an improved customer experience with walk-through gangways, in-car CCTV, air conditioning, a Rail Vehicle Accessibility Regulations compliant saloon and improved Customer Information Systems; and
- (c) the opportunity to recover energy through regenerative braking.

5.2 The introduction of the new signalling will deliver 75 per cent of the programme benefits, which include:

- (a) speed increases which reduce journey times between stations; and
- (b) the ability to run trains closer together increasing service frequency up to 32tph in the central area.

District line Branches

5.3 As reported to the Committee in July 2021, following a review assessing and challenging costs and schedules for the Programme, the western branches of the District line will not be re-signalled. This means sections of the District line south of East Putney and west of Stamford Brook will remain under the existing signalling. Journey times in these sections will remain unchanged, however, we can still increase frequencies to up to 16 trains per hour, as originally planned. We will also continue with works to improve the live customer information available on platforms in this area.

Metropolitan line Branches

5.4 There remains a strong case to continue with the re-signalling of the Metropolitan line north of Finchley Road. The re-signalling of the Metropolitan line differs from the District line because:

- (a) the existing signalling on the Metropolitan line is older than the District line. If it is not replaced the ongoing renewal and maintenance costs are significant and greater than the District line;
- (b) our planned step-change in passenger experience relies on the line being re-signalled. If we retain the legacy signalling, then we will be unable to either reduce passenger journey times or increase train frequencies; and
- (c) as we are close to completing the installation works our opportunity to save costs by reducing scope are limited and outweighed by the ongoing renewal and maintenance costs of retaining the existing signalling.

5.5 Replacing life-expired signalling is key to achieving cost effective management of our asset base. Though we may be able to achieve some immediate savings by not signalling the Metropolitan line branches, in the longer term we will spend more than we save and do not achieve any customer benefits.

5.6 Despite cost pressure on the programme, there is a strong case to complete the remaining signalling migration areas, however the immediate affordability will be kept under review as the programme progresses.

6 Assurance

- 6.1 TfL Project Assurance and Independent Investment Programme Advisory Group (IIPAG) have undertaken their review of the 4LM Programme via continuous assurance. They have received detailed briefings from the project team and are fully aware of the issues and challenges on the 4LM Programme. In addition, TfL Project Assurance have undertaken a targeted review to support this submission to the Committee.

List of appendices to this report:

Appendix 1: Signal Migration Area map

Exempt supplementary information is included in a paper on Part 2 of the agenda.

List of background papers:

Independent Investment Programme Advisory Group Report

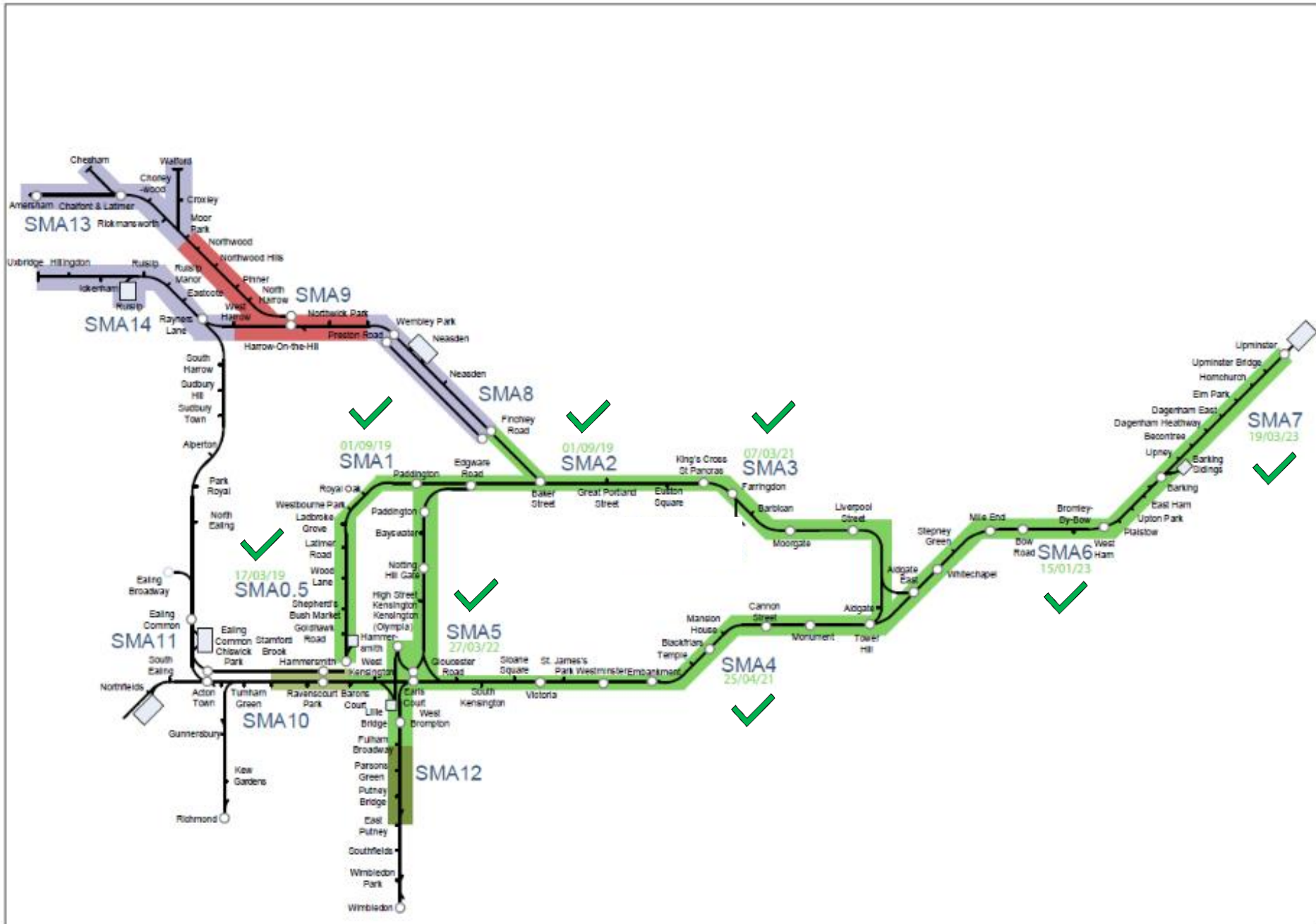
TfL Project Assurance Report

Management response to TfL Project Assurance Report

Contact Officer: Stuart Harvey, Chief Capital Officer
Email: StuartHarvey@tfl.gov.uk

Contact Officer: David Rowe, Interim Director of Investment Delivery Planning
Email: DavidRowe@tfl.gov.uk

Appendix 1: 4LM Signal Migration Area map



[page left intentionally blank]

Programmes and Investment Committee

Date: 19 July 2023

Item: Streets, Bus and Rail and Sponsored Services (RSS)
Renewals Programme

This paper will be considered in public

1 Summary

	Existing Financial Authority (to 2025/26)	Forecast to 2027/28	Existing Programme and Project Authority	Additional Authority Requested (to end 2025/26)	Total Programme and Project Authority (to end of 2025/26)
Gross Cost	£1,195.3m	£1,626.3m	£936.1m*	£201.0m	£1,137.1m
Gross Income	(£48.2m)	(£65.3m)	(£42.2m)	(£0.5m)	(£42.8m)
Net	£1,147.1m	£1,571.0m	£893.9m	£200.4m	£1,109.3m

Table 1: Streets, Bus & Rail & Sponsored Services Programme

***Existing Authority reduced by £3.6m to reflect transfer of Ticket Vending Machine (TVM) project to Technology**

- 1.1 This paper provides an update to the Committee on the achievements and progress of the newly formed Streets, Bus and Rail and Sponsored Services (RSS) Renewals Programme (the Programme).
- 1.2 The Programme groups together renewals that were split across the Surface Assets and Public Transport Programmes. These Programmes share a common approach to work-bank management and through joining together associated activities such as bus-focussed renewals, improved investment prioritisation and efficiencies can be applied. The previous Surface Assets Programme that forms part of this new Programme was last considered by the Committee in May 2023. This paper therefore focuses on the renewals activities which were previously contained within the Public Transport Programme.
- 1.3 The Programme is made up of multiple projects that deliver essential asset renewals, managing the state of good repair (SOGR) to provide safe and operable networks. This part of the Programme known as Bus and RSS Renewals, supports investment needed to maintain the safety, operability and reliability of the Docklands Light Railway (DLR), London Trams, London Overground (LO), cable car, cycle hire, New Routemaster (NRM) buses and Woolwich Ferry assets through a prioritised programme of planned and reactive renewals.

- 1.4 The level of investment planned has increased since the coronavirus pandemic but remains significantly lower than required. Around 30 per cent more expenditure would be required to maintain the networks and services in a steady state and remove the backlog of renewals. As a result, it has been necessary to defer certain works which will result in further asset deterioration and the introduction of additional network restrictions. The impact of the current levels of investment will place additional pressure on future years budgets as the assets deteriorate further and so require more extensive, and therefore more expensive repairs.
- 1.5 In July 2022, the Committee approved the extension, and re-phasing, of existing Programme and Project Authority through to the end of 2023/24. A total of £42m additional Programme and Project Authority was approved for the continuation of the Bus and RSS Renewals through to the end of 2023/24. This request seeks approval for increased Programme and Project Authority of £201m. This will cover the full delivery planned in 2023/24 and commitments in the years through to the end of 2025/26¹.
- 1.6 The focus of this paper is to:
- (a) present the Programme's achievements since the previous submission in July 2022;
 - (b) summarise the financial allocations by main asset types and projects for 2023/24 and the associated outputs; and,
 - (c) provide assurance to the Committee on the progress of the Programme;
 - (d) note that a request for Programme and Project Authority for Tram replacement rolling stock, DLR Thames Wharf and DLR Royal Docks and other rail enhancement projects which were previously part of the Public Transport Programme in 2022/23 are presented as part of the Rail and Station Enhancements Programme paper elsewhere on the agenda; and
 - (e) note that a request for Programme and Project Authority for Bus Customer Action Plan (BCAP) and Bus Safety that were previously part of the Public Transport programme in 2022/23 are presented as part of the Safe and Healthy Streets Programme paper elsewhere on the agenda.
- 1.7 At the meeting of the Committee on 17 May 2023, approval was granted for the amalgamation of the renewal activities in the Public Transport Programme with other renewal activity (e.g. Surface Assets Renewals and River Services etc) to form the new Streets, Bus RSS Renewals Programme. The emerging deliverables for the proposed new Superloop bus routes related to asset renewals also form part of this Programme.
- 1.8 The Programme will return annually to the Committee for authority approval.

¹ With the exception of DLR Station Controllers which requires commitment for delivery in 2023/24 to the end of 2028/29.

2 Recommendations

2.1 The Committee is asked to note the paper and:

- (a) approve the additional Programme and Project Authority of £201m for the Streets, Bus and Rail and Sponsored Service Renewals Programme bringing the total Programme and Project Authority to £1,137m;**
- (b) approve unbudgeted Financial Authority of £44.3m for DLR Station Controllers as described in this paper, Programme and Project Authority for which is included in the approval requested at paragraph (a) above;**
- (c) note that matters for which Authorities are sought above include commitments that extend beyond the period of the 2023/24 Budget and provision will, therefore, need to be made for those commitments in future Budgets; and**
- (d) note that Procurement Authority in respect of the various initiatives of the Streets, Bus and RSS Programme will be sought at officer level in accordance with Standing Orders.**

3 Background

Strategic Context

- 3.1** The Mayor's Transport Strategy (MTS) has three key themes: healthy streets and healthy people; a good public transport experience; and new homes and jobs. Maintaining the asset health of our Streets, Bus and RSS assets is essential to delivering all these themes as almost all journeys on London's transport system interact with it. This is particularly important to ensure that renewal of critical assets takes place to maintain a safe, operable and reliable public transport network.
- 3.2** A prioritisation framework for all of TfL's capital renewals investment has been used to determine the Programme's budget, comparing the priorities against those in other programmes and networks. The framework uses six Asset Management Objectives (AMOs) aligned to business objectives. The AMOs are safety, service, customer and staff, environment, finance, capacity and growth. Current levels of service against the AMOs are established and future forecasts are established through the investment modelling using the scenarios outlined in section 5 below.
- 3.3** The Programme's budget for 2023/24 is £59m. This is affordable within the overall £725m allocation from the budget for capital renewals across all of TfL.

Bus and RSS Renewals

- 3.4** The Programme consists of the following transport modes: the DLR, London Overground (LO), London Trams, Cable Car, Cycle Hire renewals, Woolwich Ferry and specific projects in London Buses (NRM refurbishment).

Environmental objectives

- 3.5 The nature of the renewals programme brings environmental benefits to the business, as it seeks to prolong the life of assets and avoiding asset failure. Across RSS this leads to extended life of assets before major interventions are required. Where possible when renewals are being planned, wider activities to minimise environmental impacts are integrated. Nevertheless, the core objective of the Programme is to support a safe and operable network. Due to constrained budgets, where environmental benefits are identified and can be delivered as part of a renewal, but would require additional funding, we are looking to secure support through third party funding sources. Examples of where we are already successfully delivering environmental benefits include:
- (a) all lighting renewals will now use LEDs;
 - (b) Therapia Lane tram depot, will be TfL's first carbon net zero depot. Over the next two years we are replacing the existing gas boilers, the heating circuits; installing new piping, pumps, control panels, LED lighting and making building fabric improvements. Furthermore, the installation of solar panels will support local power generation. This work is being funded by Central Government's 'Public Sector Decarbonisation Scheme²' and the 'Building De-carbonisation Programme' which is part of TfL's Environment Programme, and
 - (c) carbon modelling has commenced for track renewals, this is expected to be expanded to other assets and we are anticipating following this up with a study looking into the circular economy and local sourcing of materials (subject to resource availability).
- 3.6 To ensure the business continues to look at investment prioritisation with the environment as a key driver, the AMOs have been reassessed. These now include a pan-TfL objective for the environment which will feed into the subsequent long term capital planning and funding of work.

Asset duties and responsibilities

- 3.7 Renewals are planned through 25-year work-banks that are maintained and refreshed annually by TfL's Engineering, Asset Operations and Asset Strategy teams. Schemes in the first three years are consistently prioritised using a value model that is agnostic to asset type or engineering discipline. The prioritisation process ranks schemes in order of importance to the mode. The outputs from the prioritisation process are peer-reviewed by TfL's Engineering, Asset Operations and Asset Strategy teams.

² Public Sector Decarbonisation Scheme provides grants for public sector bodies to fund heat decarbonisation and energy efficiency measures from the Department of Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy.

Maintaining assets in a State of Good Repair

- 3.8 SOGR is a measure of the current state of the asset TfL seeks to describe the optimum SOGR to maintain assets (i.e. safety reliability and minimising Whole Life Cost). We are in the process of developing a full suite of SOGR metrics for this portfolio and whole life models to inform the optimum SOGR. Where the SOGR is below the preferred range it reflects the need for renewals investment to deliver a reliable network and reduce the risk of restrictions and closures. The percentage of assets in these categories is used to calculate SOGR. Safety is maintained through appropriate inspections, minor repairs and operating restrictions.
- 3.9 SOGR measures a consistent five category scale of asset condition – the condition categories are Very Good, Good, Fair, Poor and Very Poor. The percentage of assets in these categories is used to calculate SOGR, namely:
- SOGR – the sum of the percentages in the Very Good, Good and Fair categories. These assets, in general, do not require planned asset renewal in the next one to three years, although in some instances it does reduce whole life costs to intervene when an asset is in the Fair category; and
 - not in a SOGR – the sum of the percentages in the Poor and Very Poor categories. Typically, these assets should be considered for a renewal within the next one-to-three-year period.
- 3.10 Target ranges across TfL typically score between 85 and 95 per cent. Figure 1 below illustrates key asset areas where SOGR measurements are in place for the whole asset group and demonstrates key areas where we are well below comparable condition scores. DLR scores have improved in both Lifts and Escalators and Track, while Power has declined slightly due to difficulties experienced in the renewals programme with a fire at a UK Power Networks substation contributing to a lack of capacity for the programme. The ‘Poor’ score obtained by the London Trams fleet is reflected in declining service availability. At the time of writing, updated SOGR information for some asset groups for 2022/23 is still awaited.

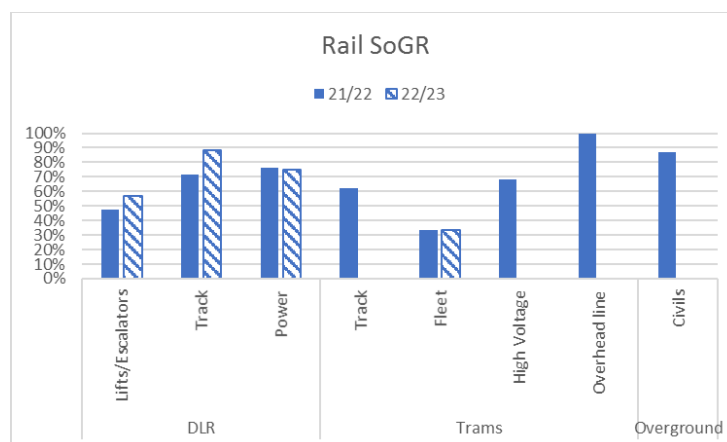


Figure 1: State of Good Repair where in place for key asset groups.

Obsolescence concerns

- 3.11 Obsolescence is an increasing concern, especially on assets which contain software such as the DLR signalling system. The equipment was the forerunner to later systems installed on the London Underground. We are working with the supply chain to identify how best to keep these systems in an operational condition as parts and software become increasingly difficult to support.
- 3.12 DLR Station Controllers are a fundamental part of the DLR signalling system and are one of the most expensive signalling subsystems to replace. The system is obsolete but performing well and will be supported until 2024. Replacement takes a significant time (up to five years) and therefore will need commitment for its whole delivery duration.

Impact on Operations

- 3.13 There are now regular shortfalls in the availability of trams for passenger service. The passenger service is always maintained and operated in a safe condition. The original tram fleet of Bombardier CR4000s are around 24 years old and are reaching the end of their design life and are becoming less reliable. This has meant that it has not always been possible to operate a full timetable. The impact has been an increase in short notice cancellations, until trams are fixed and returned back to service.
- 3.14 Another asset group that has declined below standard due to under investment are DLR's lifts and escalators. Over the next two years a substantial programme of renewals and overhauls is planned. Figure 1 above shows that although there is an improvement in the overall SOGR compared to 2021/22 it still remains at 60 per cent which is under TfL's target range of 85 to 95 per cent.

4 Programme Delivery in 2022/23

- 4.1 The total investment for Bus and RSS Renewals in 2022/23 was £60m. At the time of the last update to the Committee the investment was planned to be £62m. The level of investment has reduced through the year due to constraints in resources and procurement activities. This has resulted in some delivery slipping into 2023/24 in addition to net cost savings achieved. Where possible investment has accelerated through progressing additional design work for priority renewals to enable delivery and utilising budget availability from the wider TfL Investment Programme. An example of this is in DLR Renewals Track delivery.
- 4.2 The Bus and RSS Renewals Programme consists of over 300 renewals projects (including one project for London Buses). Table 2 below sets out the in-year performance for renewals in 2022/23 for this programme.

Renewals Programme	2022/23 Programme and Project Authority Request July 2022 (£m)	2022/23 Actual Spend (£m)	Variance (£m)	Performance Update	Variance Commentary
Bus	3.9	4.2	-0.2	The NRM mid-life refurbishment programme completed 278 refurbishments.	200 refurbishments were proposed, however there was an opportunity to deliver more therefore 278 refurbishments were completed, hence the additional spend.
Cable Car	1.0	0.5	0.5	Replacement of the haul rope was completed as well other essential cableway renewals. All the lighting in the terminals was upgraded to LED lights. Refurbishment of an empty space was completed making it into revenue generating experience.	The planned maintenance shutdown for March 2023 was deferred until November 2023 due to resource constraints. This included the replacements of the gearbox and motor.
Cycle Hire Projects	2.5	3.1	-0.6	Replacement bikes purchased to mitigate lost and stolen assets, including delivery of e-bikes which have been deployed in the scheme for the first time. Ongoing station repairs and relocations were delivered.	Additional bikes were purchased in the year, this included e-bikes hence an additional spend.
DLR	39.4	32.0	7.4	Good progress with design and delivery in the DLR Asset Renewals Programme. Completed as planned a number of projects: track re-railing, arch refurbishments, lift and escalator refurbishments, baseplate replacement, shoe gear protection and rolling stock renewal.	Slippage of some projects was due to a shortage of resourcing in engineering and commercial teams. Key areas of variance were: Lifts and Escalators – delayed material procurement due to European market; High Voltage Traction – due to a fire at Beckton in Summer 2022.
London Overground	10.4	5	5.4	A high level of maintenance completeness and a comprehensive renewals programme culminated in 'best ever' performance on the core underpinning the TfL/ Arriva Rail London / Network Rail line of route.	The stop/start nature of funding in 2022/23 made it challenging to deliver the full programme with the available resources, remobilisation, lead to some delays. The delivery of asset renewals by the Maintenance Contractor has fallen short of expectations. Future works have been allocated to other avenues of delivery.

Renewals Programme	2022/23 Programme and Project Authority Request July 2022 (£m)	2022/23 Actual Spend (£m)	Variance (£m)	Performance Update	Variance Commentary
Woolwich Ferry	4.1	1.1	3.0	The first service stoppage to enable renewal works to take place was successfully carried out in 2022/23. Multiple projects were carried out simultaneously in order to minimise user disruption.	South Layby Berth project remains at feasibility stage to identify a value for money proposal. There was slower progress than anticipated with the North Terminal project following increased requirements agreed with local stakeholders.
Trams	19.9	13.8	6.1	Good progress in procurement, design and delivery of projects in the tram asset renewals programme, spending on renewal of track, civil, power, systems and Fleet/depot projects including vehicle incursion mitigations, and renewing the flooring and roofing on the fleet. In Track, renewal of 550m of ballasted track and points between Mitcham and Mitcham Junction.	There were procurement delays therefore it took longer to award key contracts along with resource constraints in engineering and commercial Some slippage affecting the delivery of the Mitcham Junction drainage and track renewal works due to poor asset information leading to significant cable diversion work.
Gross Total*	81.3	59.7	21.5		

Table 2: Renewals Full Year Performance against plan by mode

* Excluding Overprogramming and Value Engineering

4.3 Appendix 2 provides a summary of 2022/23 allocations, actual spend and outputs for the Programme. To ensure efficient and effective management of the Programme in year, adjustments to individual budget allocations were made to reflect any changes to known asset condition, whilst also focusing on priority schemes where delivery was achievable.

4.4 Challenges in 2022/23 for DLR delivery included supply chain challenges such as steel-related components delivery problems related to the conflict in Ukraine, baseplate components from China were delayed due to ongoing lockdowns, resources (where suppliers cannot compete because of high inflation), a fire at Poplar Depot, rolling stock replacement delayed due to design approval, securing network access to complete works and some projects were delayed as a result. These challenges were mitigated by accelerating priority schemes within the work-bank of projects when required. In other areas the supply of raw materials such as sand for trams continued to challenge. The shortage of key resources across TfL remained one of the biggest challenges, with high staff turnover in all areas and slow recruitment process to replace and train staff to continue delivery.

4.5 The previous Public Transport Programme had an efficiency target of £3.7m for 2022/23, which was successfully exceeded, with a total £4.2m of efficiency savings made. The savings came from contract agreements across a number of assets, savings declared on several project final accounts and moving Woolwich Ferry roadworks to be delivered during a service shut down.

4.6 Appendix 4 shows examples of delivery in 2022/23.

5 Programme Delivery for 2023/24

Option assessment

5.1 The following strategic options have been considered:

- (a) **Budget Constrained (funded scenario):** This means to remain within TfL budget allocations for the next 10 years and forecasting condition and levels of service against the AMOs. The current constrained funding is below required funding to maintain steady state which will lead to service restrictions and decreasing reliability.
- (b) **Base:** This means to Achieve the 'Base' level of service for the AMOs. Declining SOGR and increasing asset defects/faults; the majority of interventions are reactive. Restrictions, closures, and service reductions will be required to manage safety. Increased pressure on operational and engineering teams to manage assets and safety, with a large renewals backlog which will take years to address and result in a prolonged period of service disruption (several years). The service remains safe; however reliability is reduced. Customers frequently experience disruptions and delays during their journey and modal shift is evident. Customer satisfaction will be more likely to decline, with negative press coverage of London's transport network also more likely.
- (c) **Average:** This means to achieve the 'Average' level of service for the AMOs. A mix of planned and reactive renewals depending on risk exposure. In control of SOGR and asset risks. Customers receive an adequate but acceptable service that is safe and generally reliable, services can be inconsistent. Customer experience of TfL services is mixed; this is reflected in customer feedback with major complaints occasionally made.
- (d) **Good in 10 years:** This means to achieve the 'Average' level of service for the Asset Management Objectives within the next 10 years. Optimised interventions, utilising preventative interventions to reduce whole life costs. Well planned interventions that minimise network disruption, innovating materials and processes. Customers know they will have a safe, reliable and easily accessible journey. The experience will be of a 'world-class' transport environment with trains, buses, stations and facilities which customers praise and promote to others. A good/high-quality service, with the appropriate reliability and availability, that delivers the ambition of the MTS and caters for on-going passenger growth/demand.

- (e) **Good in five years:** This means to achieve the ‘Average’ level of service for the Asset Management Objectives within the next five years. As for Good in 10 years but achieved within five years.
- 5.2 Option 5(a) Budget Constrained represents the current position. To manage the Programme efficiently, a work-bank management approach is applied. This is where potential critical renewals in 2023/24 have been identified to the value of £96m (i.e. £26m above the £70m budget). This work-bank approach, applied to all of the Bus and RSS Programme, allows for the acceleration of priority schemes should further funding become available, or if delivery on other schemes is slower than anticipated. Periodic reviews will be used, together with quarterly investment decision points to assess the level of delivery achieved, the planned outputs and determine whether additional commitments can be made. This will include ongoing review of asset priorities to ensure the best value for money investment. This approach gives maximum flexibility to ensure safe and operable networks are maintained.
- 5.3 This paper requests approval of additional Programme and Project Authority to continue Programme delivery to 2025/26. An overview of the planned programme of renewals projects is presented in Table 3 below by mode. On DLR, a high proportion of the planned expenditure reflects the issues raised in section 3 relating to the obsolescence of equipment. The situation on LO shows a focus on civils, track and signalling works. On London Trams, the investment is dominated by track and fleet investment that reflects the age and condition of these assets as they reach the end of their design lives.
- 5.4 Appendix 3 shows the 2023/24 forecast expenditure and outputs and contains the list of works in this programme for 2023/24, which is summarised in Table 3 below by sub-programme.

Programme	Number of Projects	Value (£m)
DLR	96	40.4
Trams	55	23.5
LO	105	13.7
Woolwich Ferry	13	5.2
Cycle Hire	7	4.0
Cable Car	13	1.0
Bus	1	8.4
Total	290	96.3

Table 3: Summary of Project Volumes by mode for 2023/24 (excludes elements of the programme which were subject to separate consideration and approval by the Committee in May 2023).

Delivery in 2023/24

- 5.5 Key activities planned for each of the modes in 2023/24 include:
- (a) **DLR:**
- (i) Signalling – Station Controllers design and build contract awarded;
 - (ii) Communications – transmission network design and build contract awarded and commencement of works, Long Line Public Address (PA)

Phase 4 in delivery, commencement of Long Line PA Phase 5 procurement;

- (iii) Electrical and Mechanical – commence design and delivery of 59 lifts, commence delivery of 18 escalators;
- (iv) HV Traction – delivery of six HV and DC switch gear renewals;
- (v) Rolling Stock – commence procurement of B2007 fleet mid-life refresh;
- (vi) Track – Re-railing around 300m and install 16 Structural Expansion Joints; and
- (vii) Civils - refurbishment of final arch at Limehouse;

(b) **London Overground:**

- (i) Signalling – WestCAD³ replacement – Design and install a new signalling control system with that will address deficiencies in the existing system; remote condition monitoring of axle counters;
- (ii) Premises – Roof, canopies and stairs renewals across West Anglia route stations, viaduct arch water ingress remediation;
- (iii) Lifts and Mechanical and Electrical systems – Lift obsolescence renewals programme, Saft⁴ 48V rectifier renewal;
- (iv) Civils – Wall 642 remediation and reinforcement;
- (v) Track – Replace three thousand (3,000) Baseplates in the Thames Tunnel;
- (vi) Telecoms – Deliver the design for the replacement of 11 Global Systems Mobile Communications-Railway (GSM-R) Base Stations and five repeaters, deliver the design for the replacement of the transmission equipment on the East London Line (ELL) core route; and
- (vii) Fleet – Deliver the updated 378 train cab simulator;

(c) **Trams:**

- (i) Track – 120m of embedded track at Church Street, completion of drainage renewal at Mitcham Junction, design and delivery of drainage at Sandilands;
- (ii) Civils – carriageway resurfacing and crossing safety improvements within Croydon town centre, renewal of step-free access ramp at Birkbeck retaining wall;
- (iii) Fleet/ Depot – progress detailed design for renewal of control room at Therapia Lane Depot, renewing the cab doors and flooring on the CR4000 tram fleet; and
- (iv) Power and Systems – completion of replacement of life-expired depot lineside power isolators, completion of design for new digital tram radio system.

(d) **Woolwich Ferry:** Completion of the five-yearly dry docking of Woolwich Ferry vessels, rolling asset maintenance on the ferry terminal Linkspan, implementation of ferry service customer information improvement projects;

³ WestCAD - a signalling product originally developed by a supplier known as Westinghouse Rail Systems.

⁴ Saft – a company that provides high technology batteries used in the railway system

- (e) **Buses:** New Routemaster Refurbishment – programme to deliver a further 335 refurbishments, over 50 per cent NRM fleet will have been refurbished; in addition, the emerging deliverables for the new Superloop bus routes are also part of the programme;
 - (f) **Cycle Hire:** E-bike renewals to deliver against contractual bike numbers, docking station repair and relocation projects, asset condition survey and follow-on works; and
 - (g) **Cable Car:** Cableway Maintenance – gearbox and sheave assembly overhaul, replacement of defective air conditioning unit and CCTV upgrades.
- 5.6 Due to the reduced funding available in 2023/24 lower prioritised projects are deferred causing impacts on service and reliability. Examples of this include:
- (a) no activity will be progressed on the DLR for permanent way spares resilience, system obsolescence, or friction management measures;
 - (b) no activity will be progressed in LO for ELL tenant renewals, ELL relay replacements, fencing replacements;
 - (c) no activity will be progressed on Woolwich Ferry – South Terminal works and maintenance shed.

Expected Activities beyond 2023/24

- 5.7 Many activities will continue beyond 2023/24, such as DLR Station Controllers. Replacement takes a significant time (up to five years) and therefore this project will need commitment for its whole duration. This authority request therefore includes commitment for DLR Station Controllers until 2027/28.
- 5.8 Some activities will continue into 2024/25 any expenditure will be subject to scope and commitments developed in 2023/24 and therefore future commitments will be subject to available funding.

6 Programme risks and milestones

Programme Risks

- 6.1 The top risks associated with delivery of the Programme are shown in Table 4 below:

Table 4: Top risks from RSS Renewals Programme

Risk ID	Risk Description	Mitigation
1	There is a risk that in certain areas we are committed to suppliers for the long-term (e.g. signalling and control systems and raw materials e.g. sand for trams), end of life support and renewals costs are defined by the Original Equipment Manufacturer (OEM)	Understand the costs supplied by OEM by using benchmark information (historic costs and previous costs on similar) and challenge those costs where possible
2	There is a risk of forecasting inaccuracies and over-optimistic planning	New estimation process for large (>£0.5m) projects prior to going to market. Planner joining and on-board to support LO Renewals. Examine the scope maturity and embed this into LO (as per DLR and Trams). Re-iterate a consistent approach and shared learning
3	<p>There are several elements to the Resource risk.</p> <p>There are shortages of key resources including PMU / PM / Engineering and Commercial, Cost Management and IDP area.</p> <p>This is partly due to market supply limitations and other larger programmes drawing resources away.</p> <p>This also applies to staff moving internally to other areas of the business due to higher pay.</p> <p>Also the financial climate and TfL's current fiscal difficulties may hinder recruitment opportunities.</p> <p>Even if staff are obtained it is possible that they lack the sufficient skills sets to provide effective support and professional guidance and opinions.</p>	Succession planning and developing our staff: This includes the creation of a robust plan to cover illness, leave, and staff who move on from the Programme. In addition, work is progressing on role families and a more consistent rewards framework across similar roles. However, these challenges will persist for the foreseeable future.
4	There is a risk that the schemes that emerge are not developed and accurate enough to enable effective delivery of objectives. Projects need to be developed enough to be submitted for Gate 1	Asset Strategy to produce an Initial Proposition Document and hand over to IDP prior to Gate 1. Format of that document and key information to be agreed with IDP in advance. Engineering, maintenance and project delivery are all to be consulted and contribute
5	There is a risk that CAPEX funding limitation or CAPEX uncertainty could lead to reduced quality, planning and forecast difficulties, resource limitations, abortive works, lower staff morale.	CFO instruction places the highest priority on safety of current operations and preserving service levels and connectivity for London and ensure we have customer base to drive future revenues.

6	There is a risk that changes to Organisational Structure (move to Capital model) may lead to breaks in continuity or complex reporting and governance in the short-term. Roles and responsibilities and accountabilities are not yet clear	A big bang approach has been cancelled in favour of progressive role out of new changes.
---	---	--

Programme Milestones 2023/24

6.2 The strategic milestones are shown in Table 5 below:

Table 5: Strategic Milestones

Mode	Project	Milestone	Tier	Target Date
Trams	Church Street Embedded Track Renewal (Achieved 17 April 23)	Bring into use	CCO RSS Scorecard	27 April 2023
DLR	DLR Lift Car Renewals V3 – 2019/20 (Achieved 12 April 23)	All 30 Lift Car Renewals Complete – Brought into use	CCO RSS Scorecard	10 May 2023
DLR	S&C Renewal/ Replacement Programme 2022-27 (Achieved 02 May 23)	2023/24 South Route Installation – Bring into use – Replacement of 1181 A/B points	CCO RSS Scorecard	12 May 2023
DLR	Plain Line Renewals Programme (2021-24)	Stratford International Ballast Track Renewal; between West Ham and Star Lane – Bring into use	TfL Scorecard	08 September 2023
LO	Cab Simulator for LO Rolling Stock	Testing and commissioning complete	CCO RSS Scorecard	29 January 2024

7 Commercial Strategy

- 7.1 The Programme is predominantly delivered by contractors using existing frameworks. Where this is not the case procurements are planned and conducted in accordance with TfL governance and procurement regulations. Each procurement will be managed by a Procurement and Commercial specialist assigned to the respective asset area. A standard set of contracts are used, based on the NEC3 contract form, these are amended for TfL use.
- 7.2 Procurement commitments are managed in accordance with the current TfL funding constraints and prioritisation. To account for the funding constraints and changing priorities procurements may consider contract break points which permit

TfL to regulate commitments; as well as contractual mechanisms and specifications which allow for flexibility of workload and delivery methodologies.

8 Financial Implications

- 8.1 The 2023 TfL Budget provides the Financial Authority needed to deliver the scope of the works set out in this request, save as described below. Of this, the Programme and Project Authority request for Bus and RSS renewals includes £44.3m for multi-year commitment to 2028/29 for the DLR Station Controller contract, which is not included within the financial authority.
- 8.2 This request seeks an unbudgeted Financial Authority of £44.3m for the DLR Station Controllers described at paragraph 3.12 above, commitment for delivery of which is needed before the next planned Budget approval. Any future funding constraints will require reprioritisation of the renewals work bank to accommodate this commitment.
- 8.3 The existing Project and Programme authority was granted under the legacy Public Transport Programme. The Bus & RSS Renewals programme in addition to other enhancements delivered under Public Transport have been transferred following the approval of the May 2023 P&IC Programme Structure paper to new programmes as reflected in Appendix 1.
- 8.4 The Programme's Financial Authority and the Programme and Project Authority is shown in Table 6 below.

Table 6: Summary of the Programme’s Financial Authority and Programme and Project Authority

Transport Activity		Actuals	Actuals	Actuals	Actuals	Actuals	Prior Years	TfL Budget	TfL Plan				Total	Total to 25/26
		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28		
Bus and Rail & Sponsored Services Renewals														
Financial authority														
	Programme Total	34	31	45	57	50	60	66	74	79	84	94	673	495
	Budget or Plan													
	<i>TfL Element</i>	34	28	42	57	50	59	66	74	79	84	93	665	488
	<i>Third Party Funding</i>	0.0	3.0	3.1	0.2	-0.2	1.1	0.0	0.3	0.3	0.3	0.3	8.3	7.8
Authority Request														
	Programme Total	34	31	45	57	50	60	65	70	123	65	82	681	534
	Forecast													
	<i>TfL Element</i>	34	28	42	57	50	59	65	70	122	65	81	673	526
	<i>Third Party Funding</i>	0.0	3.0	3.1	0.2	-0.2	1.1	0.0	0.3	0.3	0.3	0.3	8.3	7.8
	<i>Authority request</i>													
	Programme and Project Authority												333.2	333.2
	<i>PIC Approved</i>													
	<i>Additional authority requested</i>												201.0	201.0
	<i>Future Authority Requests</i>												178	

*Above reflects Bus and RSSs (excludes legacy “Assets Portfolio”)

**All values in £m unless stated otherwise.

*** Existing Authority reflects transfer of £3.6m Project and Programme Authority for TVM to the Technology Portfolio

**** For 2025/26 Additional Project and Programme Authority reflects a significant increase in renewals signalling investment (DLR Station Controllers). To reflect the full commitment which includes the unbudgeted Financial Authority of £44.3m for the DLR Station Controllers which needs delivery commitment (2023/24 until 2028/29).

9 Equality and Inclusion

9.1 Section 149 of the Equality Act 2010 (the Public Sector Equality Duty) provides that, in the exercise of their functions, public authorities must have due regard to the need to:

- (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under the Equality Act 2010;
- (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and,
- (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

9.2 Most of the Programme is like-for-like renewals and, as such, maintains the existing provisions. The lower SOGR may have a negative impact on two groups: older and disabled customers, therefore the programme to improve SOGR is expected to benefit people in both these groups. Equality Impact Assessments will be completed on projects as required.

10 Assurance

10.1 TfL Project Assurance conducted an Integrated Assurance Review (IAR) on the Programme in May 2023. An independent review was also undertaken by the Independent Investment Programme Advisory Group (IIPAG). The review had no critical issues and identified ten general recommendations.

10.2 An agreed Integrated Assurance Plan (IAP) for the Programme, covering the next 12 months, has been produced that sets out those projects that are expected to be reviewed. The IAP will be reviewed and updated quarterly.

List of appendices to this paper:

Appendix 1: Public Transport Portfolio transfer to New Programmes and Investment Committee Programme

Appendix 2: 2022/23 actuals and outputs

Appendix 3: 2023/24 forecast expenditure and outputs

Appendix 4: Examples of Delivery in 2022/23

List of Background papers:

IIPAG and TfL Project Assurance Reports

Programmes and Investment Committee papers: Public Transport Programme 20 July 2022, Programme Structure 17 May 2023, Surface Asset Renewals Programme 17 May 2023

Management response to IIPAG and TfL Project Assurance Reports

Contact Officer: David Rowe, Interim Director, Investment Delivery Planning

Email: davidrowe@tfl.gov.uk

Appendix 1: Legacy Portfolio transfer to New Programmes and Investment Committee Programme

Legacy Public Transport Portfolio Transfer to New Programmes and Investment Committee Programme	Existing Financial Authority (to 2025/26)	Existing Programme and Project Authority 2022/23 and future years	Additional Authority Requested 2023/24 to 2025/26	Total Authority	Prior Years	Forecast 2023/24 to 2027/28	Total Forecast	May Programmes and Investment Committee Transfer of Existing Authority	Change since May
Streets, Bus Rail and Sponsored Services*	£495.3m	£333.1m	£200.8m	£534.0m	£276.6m	£404.5m	£681.2m	£336.7m	(£3.6m)
Rail & Station Enhancement Programme	£285.3m	£268.5m	(£1.4m)	£267.1m	£171.9m	£200.6m	£372.5m	£268.5m	0.0
Safe & Healthy Streets Programme	£80.3m	£35.4m	£43.9m	£79.3m	£21.3m	£103.1m	£124.4m	£35.4m	0.0
Technology Programme	£1.8m	£3.6m	£0.0m	£3.6m	£0.1m	(£0.1m)	£0.0m	£0.1m	£3.5m

* TVM noted in May Programmes and Investment Committee transfer paper as £0.1m, this has been corrected to reflect the full authority being transferred of £3.6m.

Legacy Surface Assets Portfolio Transfer to New Programmes and Investment Committee Programme	Existing Financial Authority (to 2025/26)	Existing Programme and Project Authority 2022/23 and future years	Additional Authority Requested 2023/24 to 2025/26	Total Authority	Prior Years	Forecast 2023/24 to 2027/28	Total Forecast	May Programmes and Investment Committee Transfer of Existing Authority	Change since May
Streets, Bus Rail and Sponsored Services	£700.0m	£603.0m	£0.0m	£603.0m	£334.0m	£621.0m	£955.0m	£603m	£0.0m

Overall New Programmes and Investment Committee Programme: Streets Bus and Rail & Sponsored Service Renewals	Existing Financial Authority (to 2025/26)	Existing Programme and Project Authority 2022/23 and future years	Additional Authority Requested 2023/24 to 2025/26	Total Authority	Prior Years	Forecast 2023/24 to 2027/28	Total Forecast	May Programmes and Investment Committee Transfer of Existing Authority	Change since May
Streets, Bus Rail and Sponsored Services*	£1,195.3m	£936.1m	£201.0m	£1,137.1m	£610.6m	£1,025.5m	£1,636.3m	£939.7m	(£3.6m)

Appendix 2: 2022/23 actuals and outputs

Programme	Sub-programme/ Asset	2022/23 allocations (£m)	2022/23 spend (£m)	2022/23 expected output	2022/23 outputs
DLR	Civils	39.40	32.03	Platform resurfacing (incl. copers) at three stations	Completed
				Refurbishment of four arches at Limehouse (including drainage)	Completed
				Stairs and landing replacements at three stations	Completed
	Communications			Ten intrusive surveys of hidden critical elements	Completed
				Long line Public Address replacement at three stations	Completed
				Automatic people counters replaced at 30 stations	Completed
	Electrical & Mechanical			Eight escalators mid-life refurbishment	Completed
				15 lifts mid-life refurbishment	Completed
				Lighting designs approved and commence works at two stations	Completed
	HV Traction			High Voltage weather protection installed at two sites	Completed
	Rolling Stock			Two trials completed for door nosing rubber trial and wheel slip protection	Completed
				Manufacture and delivery of 130 bogie frames	Completed
	Signalling			Four loop cables replaced	Two Loop cables replaced
	Track			Renewal of six switch and crossing units (point ends)	Renewal of two switch and crossing units (point ends)
				Install 16 structural expansion switches	Sixteen structural expansion switches installed, and re-railing around 1200m
5,000 baseplates changed		6,500 baseplates changed			
5,000m shoe gear protection installed		Completed			
Installation of wheel stops and removal of turntables at Poplar Depot		Completed			
London Overground	Civils	10.43	5.02	Renewal of deck waterproofing and protection of footpath supports of EL31 footpath structure	Design only completed

	Comms			Design and build of new lineside and station supervisory control and data acquisition Supervisory Control and Data Acquisition (SCADA) system at 10 stations and one depot (control room) Phase 1 like for like alarm monitoring Phase 2 additional PA monitoring	Phase 1 completed. Phase 2 planned for 2023/24
	Electrical & Mechanical			Thirteen lift refurbishments across the East London Line	Completed
	Fleet/ Depot			Operational Building Complex (OBC) refurbishment – deliver a combination of upgrades to driver welfare and office capacity	Completed
				Cab Simulator – procure and award contract	Completed
	Premises			Surveys and report for eight year refurbishment at two stations	Completed
	Power			Substation battery charger replacement – design and build at two sites	one site completed
				Fire alarm installation design and build at Dalston Track Paralleling Hut / Transformer Room	Delayed until 2023/24 due to performance issues with supplier
				Power Remote Terminal Unit Renewals – complete site survey, configuration download	Completed
	Signalling			Design at four sites completed	Completed
	Track			Procure baseplates and main works contractor	Delayed to 2023/24
Trams	Civils	19.90	13.82	Replace staircase serving Morden tram stop	Completed
				Installation of vehicle restraint system (VRS) at Gravel Hill	Completed
	Survey and renew 2,300m of drainage assets along the tramway between Therapia Lane and Wimbledon			Completed	
	Fleet/ Depot			Concept design for renewal of the control room at Therapia Lane	Completed
Power and Systems	Detailed design for replacement of life-expired depot lineside power isolators	Completed			





	Track			550m of ballasted track and two sets of points between Mitcham and Mitcham Junction tram stops	Completed
				Contract award for the embedded track renewals contract	Completed
Woolwich Ferry	Woolwich Ferry Programme	4.14	1.10	Ferry terminal two guiderail replacement	Completed
				North terminal highways works	Completed
				Terminal staff welfare renewal	Completed
				Competitive tender for five-yearly linkspan maintenance/renewals	Completed
				Finalise project and technical requirements for the procurement of vessel drydocking (time critical project that must be completed by October 2023)	Completed
Cycle Hire	Bike and Docking station renewals	2.47	3.11	Replacement bikes purchased to mitigate lost and stolen assets	Completed
Buses	New Routemaster Refurbishment	3.94	4.16	200 refurbishments	278 refurbishments completed
Cable Car	Cableway Maintenance	0.99	0.48	Replacement of the haul rope	Completed
				Replacement of all lighting in terminals with LED lights	Completed
				Refurbishment of an empty space to making a revenue-generating experience	Completed
				Sheave assembly overhaul	Delayed to 2023/24
TOTAL		81.27	59.72	<i>Excluding Overprogramming and Value Engineering</i>	

Appendix 3: 2023/24 forecast expenditure and outputs

Programme	Sub-programme/ Asset	Forecast Expenditure (£m)	2023/24 expected output
DLR	Civils	40.44	Refurbishment of final arch at Limehouse
	Communications		Transmission Network design and build contract awarded and commencement of works, Long Line PA Phase 4 in delivery, commencement of Long Line PA Phase 5
	Electrical & Mechanical		Commence design and delivery of 59 lifts, commence delivery of 18 escalators
	HV Traction		Delivery of six HV and DC switch gear renewals
	Rolling Stock		Commence procurement of B2007 mid-life refresh
	Signalling		Station Controllers design and build contract award
	Track		Re-railing 300m and install sixteen structural expansion joints
London Overground	Civils	13.74	Wall 642 remediation and reinforcement
	Comms		Deliver the design for the replacement of 11 Global Systems for Mobile Communications-Railway (GSM-R) base stations and five repeaters, and the design for the replacement of the transmission equipment on the East London Line core route
	Electrical & Mechanical		Lift obsolescence renewals programme. Saft 48V rectifier renewal.
	Fleet		Deliver the updated 378 Train Cab Simulator
	Premises		Roof, canopies, and stairs renewals across West Anglia Route Stations; Viaduct Arch water ingress remediation
	Power		Fire alarm installation design and build at Dalston Track Paralleling Hut / Transformer Room
	Signalling		WestCAD Replacement – design and install a new Signalling Control system; remote condition monitoring of Axle Counters
	Track		Replace 3,000 baseplates in the Thames Tunnel

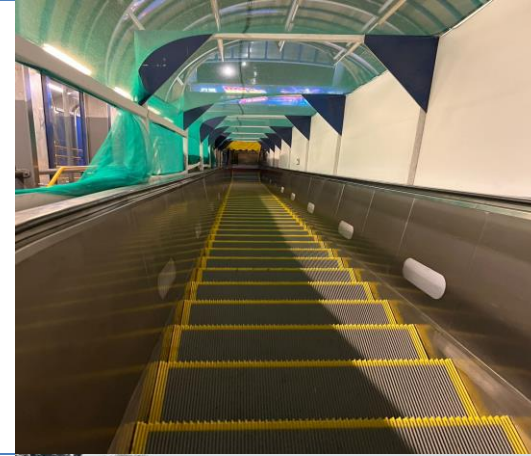
Programme	Sub-programme/ Asset	Forecast Expenditure (£m)	2023/24 expected output
Trams	Civils	23.50	Carriageway resurfacing and crossing safety improvements within Croydon town centre, renewal of step-free access ramp at Birkbeck retaining wall
	Fleet/ Depot		Progress detailed design for renewal of Control Room at Therapia Lane Depot, renewing the cab doors and flooring on the CR4000 tram fleet
	Power and Systems		Completion of replacement of life-expired depot lineside power isolators, completion of design for new digital tram radio system
	Track		Embed 120m of track at Church Street, complete drainage renewal at Mitcham Junction, design and delivery of drainage at Sandilands
Woolwich Ferry	Woolwich Ferry Renewals Programme	5.23	Completion of the 5-yearly dry docking of Woolwich ferry vessels, rolling asset maintenance on the ferry terminal Linkspan, implementation of ferry service customer information improvement projects
Cycle Hire	Bike and Docking Station renewals	4.03	Deliver against contractual bike numbers, docking station repair and relocation projects, asset condition survey and follow-on works
Buses	New Routemaster Refurbishment	8.40	Deliver a further 335 refurbishments, over 50 per cent New Route Master fleet will have been refurbished
Cable Car	Cableway Maintenance	1.01	Gearbox and sheave assembly overhaul, replacement of defective air conditioning unit and CCTV upgrades.
TOTAL		96.35	

Appendix 4: Examples of Delivery in 2022/23

Mode Project	Before	After
<p>DLR</p> <p>Limehouse waterproofing</p>		
<p>DLR</p> <p>Gallions Reach points and crossing renewals</p>		

DLR

**Tower Gateway
Escalators**



Trams

**Gravel Hill
vehicle incursion
works**



Trams

**Morden Road
staircase
replacement**



**London
Overground**

**OBC
(Operational
Building
Complex)**



Woolwich Ferry

North terminal
approach road
reconfiguration



[page left intentionally blank]

Programmes and Investment Committee



Date: 19 July 2023

Title: Rail and Station Enhancements Programme

This paper will be considered in public

1 Summary

	Existing Financial Authority (£m)*	Estimated Final Cost (EFC)** (£m)	Existing Programme and Project Authority (£m)	Additional Requested (£m)	Total Programme and Project Authority (£m)
Gross Cost***	£1,005.4	£1,110.4	£1,002.1	£19.8	£1,021.9
Gross Income	£609.2	£649.5	£574.6	£37.9	£612.5
Net Cost	£396.2	£460.9	£427.5	-£18.1	£409.4

Table 1 – Summary of Programme and Project Authority

* Existing Financial Authority includes P13 2022/23, 2023/24 Budget, Business Plan 2024/25 and 2025/26. The above table excludes Financial Authority which had been unbudgeted but which was given at previous Committees of £7.2m.

** The Estimated Final Cost includes spend outside the current business plan period.

*** Gross value is total TfL expenditure, including expenditure recovered from external parties and income from third parties.

1.1 This paper provides an update to the Committee on the achievements and progress of the Rail and Station Enhancements Programme (the Programme). This paper focuses on enhancements which were previously part of the London Underground (LU) Enhancements, Public Transport and standalone programmes.

1.2 The Committee is requested to approve an increase in Programme and Project Authority of £19.8m in total to reflect proposed adjustments, income and transfers as described in the paper. The total Programme and Project Authority including transfers and new requests is a total of £1021.9

2 Recommendation

2.1 The Committee is asked to note the paper and:

- (a) approve an increase of Programme and Project Authority of £19.8m (which includes an adjustment for an additional £37.9m third-party income) for the Rail and Station Enhancements Programme;

- (b) approve the inclusion of the Battersea Power Station Western Entrance project within this Programme, with Programme and Project Authority of £22.5m, having previously been within the Northern Line Extension Programme;
- (c) approve the inclusion of budgeted scope from Acton Works' AC14 project with Programme and Project Authority of £0.36m having previously been within the Train Systems programme;
- (d) note that the total Programme and Project Authority for the Programme including the matters listed above is £1021.9m;
- (e) note that matters for which Authorities are sought above include commitments that extend beyond the period of the 2023/24 Budget and provision will, therefore, need to be made for those commitments in future Budgets; and
- (f) note that Procurement Authority for the various initiatives will be sought at officer level in accordance with Standing Orders.

3 Background

- 3.1 The formation of the new Rail and Station Enhancements Programme was approved by the Committee on 17 May 2023.
- 3.2 The Programme is formed from the LU Enhancements Programme (including Elephant and Castle and High Speed 2 (HS2) along with enhancements from the Public Transport Programme such as East London Line (ELL) Housing Infrastructure Fund (HIF), Docklands Light Railway (DLR) Royal Docks and Trams Fleet replacement.
- 3.3 The creation of this new programme will help streamline governance, allow for better collaboration and sharing lessons on station enhancements and leveraging third-party funding. This paper brings together projects from various programmes which will have last been to the Committee at different points in the year. As a result of the nature of this programme, this paper differs from other submissions by including additional information in section four on the specific projects, their status and planned next steps.

Strategic Context

- 3.4 The Programme aims to make rail related public transport attractive and easy for all to use. This will support delivery of the three key Mayor's Transport Strategy (MTS) themes:
 - (a) **A Good Public Transport Experience:** Improving accessibility, reliability, safety, and capacity enabling a better customer experience;
 - (b) **New Homes and Jobs:** Investment in public transport capacity and reliability is crucial to supporting London's growth and unlocks sustainable development and;
 - (c) **Healthy Streets and Healthy People:** Half of walking in London takes place as part of a longer public transport journey. By providing attractive and reliable services, we can support more active travel as part of multi-modal journeys.

- 3.5 The programme will achieve this by delivering a range of outcomes to enhance our network and address known barriers to public transport usage, including:
- (a) measures to improve accessibility to public transport, such as step-free access (SFA);
 - (b) measures to address overcrowding issues and improve reliability on the network, such as capacity improvements at Elephant and Castle and Paddington station;
 - (c) measures to optimise investments in infrastructure such as a new Western Entrance at Battersea Power Station on the Northern line extension and improvements to the ELL that provides increased frequency and station enhancement on the London Overground and;
 - (d) initiatives to enhance customer safety, including improvements to the tram network and upgrading the fleet
- 3.6 A significant number of schemes within this programme are partially or fully third-party funded; thereby reducing costs to TfL to deliver these enhancements, and/or reflecting the opportunity to upgrade infrastructure due to third party development. Between 2016 and 2023 the component parts of this programme have successfully leveraged hundreds of millions of pounds of external investment. This is from a wide range of sources including the Government's Levelling Up Fund (LUF) and HIF private developers and funding from the Crossrail programme. This programme supports TfL's drive for financial sustainability, including actively growing passenger demand while creating new sources of revenue to reduce reliance on fares income.

3.7 Programme Scope

The projects and sub-programmes covered in the new Rail and Station Enhancement Portfolio are listed below:

- (a) LU Enhancements and SFA;
- (b) HS2;
- (c) Elephant and Castle;
- (d) Battersea Power Station Western Entrance;
- (e) ELL HIF;
- (f) DLR Royal Docks enhancements;
- (g) Trams enhancements (including Tram Replacement Rolling Stock and Sandilands programme);
- (h) London Overground Capital Investment Programme (LOCIP);
- (i) Rail and Sponsored Services (RSS) initiation projects;
- (j) A collection of smaller RSS legacy projects that are being closed out.

4 Programme delivery since last submission and planned delivery for 2023/24

4.1 Progress on key projects and programmes within the portfolio are set out below:

4.1.1 LU station enhancements and Step-Free Access (SFA)

- (a) The Committee received an update on LU Enhancements in March 2023, including details of progress on projects within that programme. Good progress has been made in a number of areas since this update. Key highlights include the improvements at Paddington where a developer is completing work on the new Bakerloo Line ticket hall to provide step free access. There has also been a start of works on the new south western entrance at Stratford station which is due to open by the end of 2023/24
- (b) As part of the close out of the legacy SFA work, Programme and Project Authority of £4.1m is being released to align the Programme and Project Authority with the EFC of £108.7m.
- (c) The only LU projects requiring additional Programme and Project Authority since the March 2023 update are outlined below:
 - (i) Leyton and Colindale Station capacity enhancement and SFA**
 - (a) Both the Leyton and Colindale projects use borough and LUF investment to deliver step-free access from street to train, as well as increasing the capacity of both stations. These entrances provide the capacity to support future demand increases driven by committed and planned developments around the stations. In the case of Colindale, 11,000 additional homes have already been built.
 - (b) The projects both deliver significantly improved station ambience with improved safety and security. Within the Colindale project, relocating the ticket hall over the tracks releases the current station building site for development by TfL's wholly owned property subsidiary, as part of a wider development plan using adjacent land to maximise the potential value. The additional LUF investment on top of funding from London boroughs of Barnet and Waltham Forest allows for completion of detailed design for Leyton and construction in full of both Leyton and Colindale. Since the project update to the Committee in March 2023, work has started to prepare a DfT-compliant business case. This is required to allow for the release of the £43.2m LUF that was successfully secured in January 2023 the Outline Business Case will be submitted to the DfT for assessment in July to secure release of LUF funds. Authority is requested to receive this income and to also receive £9m in grant funding from the London Borough of Waltham Forest.
 - (c) Subject to DfT approval of the business case and entering into the grant funding agreement for Leyton with Waltham Forest, the main works would commence during spring 2024 for Colindale and summer 2024 for Leyton.
 - (d) For the Colindale project, we are requesting additional Programme and Project Authority of £29.7m, with additional income authority of £22.4m to align with forecasted cost and income. This funds the construction stage to completion.

Leyton is requesting additional Programme and Project Authority of £8.0m, with additional income authority of £20.8m to align with EFC and secured income. This with investment from London Borough of Waltham Forest allows for completion of detailed design and construction. The additional income for these projects is over and above that included in previously granted authorities is included in the Authority sums requested in this paper.

(ii) Acton Works AC02 building demolition

- (a) The final stages of demolition and sterilisation of the now disused 'AC02' building will be completed to plan in the first quarter of 2023/24.
- (b) This project has taken on additional scope on the neighbouring Train Modification Building to deliver a new vehicle security and safety barrier as part of the same works. This will enable more efficient delivery than a separate project and reduce overall cost to TfL. The Committee is asked to approve the transfer of this budgeted scope and supporting Programme and Project Authority of £0.36m from LU Train Systems Programme to the Rail and Stations Enhancements Programme.

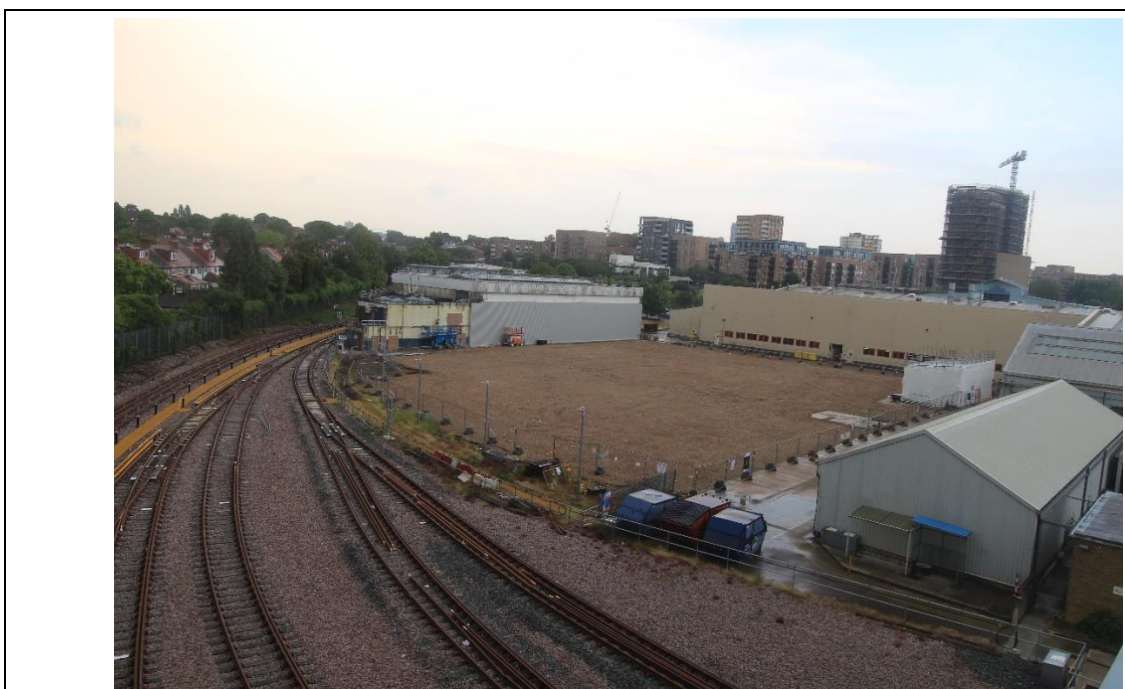
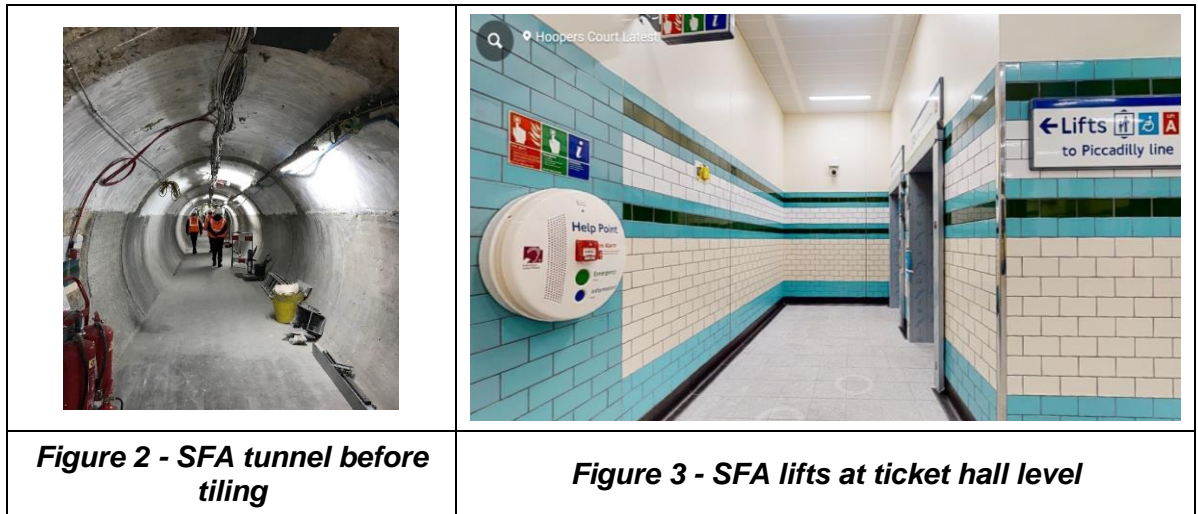


Figure 1 - Acton's former AC02 site awaiting final sterilisation

(iii) Knightsbridge Underground station

- (a) The opening of the new step-free entrance is now scheduled for spring 2024. This has moved from the last reported date of late 2023. This is because additional design work is required to enable the installation of new station systems and infrastructure works within the original Victorian tunnelling section. These works are a critical path activity to enable the systems integration of the newly incorporated assets delivered as part of this project.
- (b) The lifts which will provide step-free access have been successfully installed, tested and commissioned and will be ready to be brought into service upon completion of the wider station fit-out works. The project team, working

collaboratively with our supply chain partners have identified mitigation opportunities to improve current opening date and will be working to realise these throughout quarter 2/3.



4.1.2 High Speed 2

- (a) Since the last submission to the Committee in May 2022, the Government has announced a pause on the programme at Euston due to increased costs and affordability.
- (b) This decision will place additional pressure on Old Oak Common, a key interchange station for HS2, the Elizabeth line, and other existing rail services. The use of Old Oak Common as the HS2 temporary terminus affects the Elizabeth line which connects Reading and Heathrow Airport in the west to Shenfield and Abbey Wood in the east, passing through central London. The Elizabeth line has only been fully operational for a little over a year and already accounts for one in six of all rail journeys in the UK each day.
- (c) TfL has written to the Secretary of State and the DfT to raise significant concerns around the need for additional Elizabeth line rolling stock and provision of level boarding at Old Oak Common station.
- (d) TfL will work closely with the DfT and HS2 Ltd on a review to identify opportunities to reduce costs at Euston. This work will be undertaken to determine what is acceptable against the requirements and undertakings agreed through the Hybrid Bill. We are requesting an increase in Programme and Project Authority for this project of £4.5m with additional income authority of £4.5m, which will cover these and other HS2 related activities during 2023/24.

4.1.3 Elephant and Castle

- (a) In October 2022, the Committee approved an increase of £5.5m of Programme and Project Authority to cover inflationary increases and to bring forward scope from the later stage two to lower the risk of future communication works.

- (b) Since October, procurement arrangements for the new tunnels have progressed, with an invitation to tender issued in June 2023. A contract award for essential pre-tunnelling ancillary works was completed in April 2023.
- (c) All of these works, plus the station box, are known as stage one works and are fully third party funded. However, stage two works which contain the station box fit-out are currently unfunded. A decision on funding is required by autumn 2024 to enable seamless delivery.
- (d) During the remainder of 2023/24 a feasibility study for stage two cost and scope will be completed. Further enabling works will also be undertaken for essential pre-tunnelling and preparation for tunnelling contract award, including an industry day.

4.1.4 Battersea Power Station Western Entrance

- (a) The Battersea Power Station Western Entrance (WE) project is a legacy project from the Northern Line Extension (NLE). The project will fit-out a second entrance to Battersea Power Station including providing additional SFA. The Committee has previously been informed of the transfer of the WE project out of the NLE programme in July 2022 which will now be included in this programme.
- (b) Since July 2022 funding has been secured and a Funding and Development Agreement between TfL and Battersea Power Station Development Company has been entered into to facilitate the delivery of the WE project including an integrated construction and design team.
- (c) The WE project recently achieved TfL design acceptance and enabling works are due to commence in October 2023. Subject to delivery, the new station entrance is due to open to the public in spring 2025.
- (d) We will be requesting an increase in Programme and Project Authority for this project of £0.5m to £23m. This includes the total funding envelope of the project (£22.5m) as well as internal TfL risk provision for specific risks (£0.5m).

4.1.5 East London Line (ELL) Enhancements Programme

- (a) The main contract for detailed design and build of Surrey Quays station enhancements was awarded in December 2022, and early works commenced in May 2023 achieving the Department for Levelling Up, Housing and Communities (DLUHC) milestones. The signalling implementation contract was awarded in June 2023 with procurement for the power upgrade underway. Canada Water Bus Station concept design completed in August 2022 and procurement commenced for detailed design and build in Spring 2023. Early works also commenced in spring 2023 with completion of these works expected by the end of the financial year.
- (b) Full mobilisation of Surrey Quays station works and start on-site for power upgrades is expected by the end of the 2023.

- (c) The programme has full Programme and Project Authority but will continue to provide annual updates to the Committee.

4.1.6 DLR Royal Docks Programme

4.1.6.1 The programme scope includes the feasibility of a new station at Thames Wharf, capacity enhancements at Pontoon Dock Station and improvements at Royal Victoria Station.

- (a) **Thames Wharf:** Feasibility and value engineering have now concluded for a new station at Thames Wharf in-line with the revised masterplan for the Thameside West development. Work on the scheme will now be paused and the project will complete the necessary assurance processes. All feasibility and design information will be retained and we will return to the Committee for further Programme and Project Authority when further third-party funding is secured.
- (b) **Pontoon Dock:** Concept design for Pontoon Dock station enhancement was completed in 2022/23 but following significant cost pressures the project team have reviewed the post-Covid station passenger demand forecasts and are undertaking detailed option and value engineering assessments to reduce costs. During 2023/24 and 2024/25 a revised concept design will be finalised. Then, subject to available funding and approval from the Committee planning and procurement will be undertaken for detailed design and build.
- (c) **Royal Victoria:** During 2022/23 concept design and an invitation for tender for detailed design and build was completed for canopy upgrades at Royal Victoria Station. However, the scheme is currently paused due to reprioritisation of the Royal Docks funding.

4.1.7 Trams Enhancements

4.1.7.1 The scope of the trams enhancements work includes the Trams Replacement Rolling Stock (TRRS) Programme and the Sandilands Programme.

4.1.7.2 TRRS Programme

- (a) Our older trams have declining reliability which has resulted in lack of available fleet. This is leading to big gaps between services, crowding and poor reliability. Although we are in the process of procuring new trams, this has a long timescale to completion. To help mitigate the issues in the shorter term and minimise the impact on passengers, we are working with the operator to provide as reliable a service as possible.
- (b) Replacement of the tram fleet was endorsed by TfL Investment Group in January 2023 as the preferred single option. The programme team has undertaken early market engagement to understand market and help inform technical requirements.
- (c) The project is developing and it is intended that a concept design in the next year it is not therefore not possible to ascertain at this stage the full Programme and Project Authority that will be required.

- (d) The procurement process will commence later this financial year and design development will continue with related work including depot stabling and network power upgrades. The core proposal is to purchase trams to replace the original CR4000 fleet, but options for additional trams will also form part of the procurement process. An additional £7.7m of Programme and Project Authority is being requested to cover these activities. Next year, the programme will return to the Committee to request full Programme and Project Authority.

4.1.7.3 Sandilands

- (a) The outstanding initiatives from the Sandilands programme were due to be completed in 2022/23. However, final elements of this programme were unfortunately delayed due to technical problems with the trams power supply which led to a change in delivery strategy.
- (b) During autumn 2023/24 the track and tunnel lighting improvements are planned to be completed concurrently to minimise disruption to customers. In addition, the I-tram system will progress to improve operational reporting by providing real-time performance, accurate tram geographical location data and tram drivers will get an overspeed alert. An additional £1.43m of Programme and Project Authority is being requested to cover these activities. The EFC has increased from £19.2m to £21.5m due to programme prolongation and additional power requirements.

4.1.8 London Overground Capital Investment Programme (LOCIP)

- (a) LOCIP includes the completion of legacy works to allow assets to be handed over to Network Rail (NR). Legacy projects which require close out are London Overground Correct Side Door Enabling (LOCSDE), Willesden Power Supply Plant (PSP) Unit Shelter and Highbury and Islington (H&I) Telecoms.
- (b) During 2022/23, LOCSDE survey works commenced and permits were agreed with NR including negotiations of suitable possessions; Willesden PSP Unit Shelter procurement routing were agreed, and H&I Telecoms works were completed, and the Health and Safety file is being completed for handover.
- (c) In 2023/24, further survey works will be completed to allow works to be delivered. NR will be provided with spares and equipment, as-built drawings and handover documents and the programme will be closed. An additional £612k of Programme and Project Authority is being requested to cover these activities over 2023/24.

4.1.9 Rail and Sponsored Services Initiation projects

- (a) During 2023/24, the initiation of a pipeline for rail and sponsored services enhancements projects is planned, responding to opportunities that are arising. Many of these are fully or partially third-party funded but require initial support and development. These activities include scoping, requirements gathering, planning and estimating. £40k Programme and

Project Authority is being requested to develop these projects over 2023/24 and 2024/25.

5 Performance against milestones

5.1 Table 2 below reports progress against the Scorecard Milestones in 2022/23 and Q1 of 2023/24 showing that all target dates have been met for the programme.

Scorecard Milestone	Target Date	Progress Update
Whitechapel ticket hall dismantling completed	28/07/2022	Achieved early on 17/06/2022
Knightsbridge opening of Brompton Road entrance	25/09/2022	Achieved early on 30/08/2022
Tram Replacement Rolling Stock Programme- Gate 2 Option Selection Review (T2 scorecard)	20/12/2022	Achieved early on 19/12/2022
ELL - Signalling works Mobilisation (T2 scorecard)	13/06/2023	Achieved 13/06/2023
Surrey Quays Station - Start on Site	17/06/2023	Achieved early on 26/05/2022

Table 2 - 2022/23 and Q1 of 2023/24 Progress against Scorecard

6 Equalities Implications

6.1 TfL has an obligation under the Equality Act 2010 to:

- (a) eliminate discrimination, harassment, victimisation, and any other conduct that is prohibited by or under the Equality Act 2010;
- (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and,
- (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

6.2 The programme is delivered in accordance with the Equality Act 2010. Each Station Enhancement project undertakes Equality Impact Assessments on the impact of the proposals on each of the groups of people with protected characteristics. Schemes may have a temporary impact during delivery, but in the long term all enhancements have positive impacts on addressing equality issues across the network including the provision of SFA.

7 Financial Implications

7.1 As a result of the income requests detailed in this paper, TfL will receive a total of £43.2m from the LUF, £9m from the London Borough of Waltham Forest and £4.5m from HS2, in addition to the significant third-party funding previously secured. Table 3 shows the summary of the additional income to be received and the adjustments in existing authority to receive Income.

Additional Income	£m	Commitment
Levelling Up Fund (Colindale and Leyton)	43.2	Memorandum of Understanding will commit TfL to deliver Leyton and Colindale with TfL holding the cost overrun risk
Waltham Forest Funding (Leyton)	9.0	Refund LBWF money (including any funds spent) if project not delivered
HS2	4.5	Funding is subject to the terms set out in the Repayment of Costs Agreement with HS2. HS2 are required to pay our reasonable costs in line with the Protective Provision Agreement (PPA) secured as part of the HS2 Act
Total:	56.7	
Existing uncommitted income authority	18.7	
Total additional income authority requested	37.9	

Table 3 – Summary of additional Income

7.2 The Programme’s Financial Authority and forecast summary by year is outlined in Table 4 below

Rail and Station Enhancements		Prior Years	TfL Budget	TfL Plan					Future Years	Total	Total Years to 25/26
			2023/24	2024/25	2025/26	2026/27	2027/28				
Financial authority	Budget or Business Plan	£'m	£'m	£'m	£'m	£'m	£'m	£'m	£'m	£'m	
	Gross Cost	705.5	86.5	119.8	93.6	67.7	49.8	12.3	1135.2	1005.4	
	Net Total	350.0	23.6	7.4	15.3	49.2	37.7	0.0	483.1	396.2	
	Income	355.6	63.0	112.4	78.3	18.5	12.1	12.3	652.1	609.2	
Forecast	P2 23/24 Forecast										
	Gross Cost	705.5	81.5	105.3	64.2	98.2	46.6	9.1	1110.4	956.5	
	Net Total	350.0	8.7	20.7	6.0	41.0	34.5	0.0	460.9	385.4	
	Income	355.6	72.8	84.6	58.2	57.3	12.0	9.1	649.5	571.2	

Table 4 - Summary of the Programme’s Financial Authority and Forecast broken down by year

7.3 There are a number of Programme and Project Authority adjustments proposed within this paper that are detailed within the table in Appendix 1. These include some project close outs where unused Programme and Project Authority is being returned, removal of projects from the Programme and transfers of projects into the Programme.

7.4 The prior year financial data reflect those programmes which are seeking authority. The figures exclude projects that are now completed.

- 7.5 Many activities will continue into 2024/25 any expenditure will be subject to scope and commitments developed in 2023/24 and therefore future commitments will be subject to available funding.
- 7.6 Existing Programme and Project Authority for projects was granted under the old programme structure. Appendix 2 outlines the legacy programmes that the projects and programmes within this paper (and their authorities) have been transferred from.

8 Opportunities, Challenges and Lessons Learnt

Opportunities

- 8.1 The success of this Programme is significantly reliant on securing third-party funding. We will continue to work closely with London boroughs, the Greater London Authority, government and developers to negotiate and leverage future funding opportunities for enhancements. To ensure we can be as responsive to future funding opportunities, we are developing prioritised pipelines across LU and Rail and Sponsored Services that aligns with The MTS.
- 8.2 Where third-party developments create additional passenger demand, mitigation can be sought through the planning process with direct funding contributions or work delivered directly by third party developers.
- 8.3 We are working closely with TfL's wholly owned property development company to ensure a co-ordinated approach to developing their property portfolio. This will allow TfL to optimise the benefits to the customer facing network that can be realised through these development opportunities.

Challenges and Key Risks

- 8.4 Despite successfully leveraging significant third-party funding, affordability remains a key challenge for the Programme. In the current economic climate, inflationary pressure on materials and increased labour costs are significantly impacting the construction industry. Project teams are working hard to ensure these cost pressures are forecasted in revised cost estimates. However, there is a risk that in-flight projects do not have sufficient risk allocation to cover these increases.
- 8.5 The top risks associated with delivery of the Programme are shown in Table 5 below.

Project/Programme	Risk Description	Mitigation Actions
High Speed 2	Insufficient infrastructure being delivered by HS2 due to Euston programme pause and cost constraints.	- Regular engagement with HS2, NR and DfT to set out our red lines (minimum infrastructure requirements)
Elephant and Castle	Affordability- risk that tender returns will exceed budget	- Early market engagement, including industry day events

Project/Programme	Risk Description	Mitigation Actions
Battersea Power Station Western Entrance	Increase in TfL resource costs to manage the works as part of the integrated construction and design team	<ul style="list-style-type: none"> - Periodic review of resource forecast - Tight fiscal control of timesheet bookings
ELL Programme	Programme Prolongation and cost increases. Projects are delayed and there is resulting staff prolongation or Acceleration may be required to meet funding obligations which would increase costs.	<ul style="list-style-type: none"> - Interface with operational Stakeholders and planned closure of ELL to support works - Active management of NEC contract and programme for acceptance.
DLR Royal Docks	Lack of available funding and or delay in obtaining funding for future implementation	<ul style="list-style-type: none"> - Early engagement with GLA to seek upfront drafting of future funding agreements - Robust estimates updated during stages design - Value Engineering
Trams Enhancements	Affordability – risk that full funding is not available. Supply chain problems, cost increases and delays due to socio-political events may occur during the programme, resulting in increases in cost and delays	<ul style="list-style-type: none"> - Early market engagement - Continue to monitor foreign exchange forward curves and inflation indices with Corporate Finance and Estimating teams
SFA programme	Achieving programme objectives within budget depends on ongoing success at leveraging third-party funding	<ul style="list-style-type: none"> - Building a larger workbank than we have funding for to enable us to pursue the best value opportunities - Engagement with partners (and potential partners) to build the case for SFA

Table 5 – Top project risks

Lessons Learnt

- 8.6 Underpinning the current LU Capital delivery approach is an integrated delivery partner model with multi-stage engagement, flexible contractual and commercial models to drive optimum performance through incentivisation and an equitable approach to risk whilst harnessing Early Contractor Involvement and end-to-end design engagement to drive affordable design from concept through delivery and promote innovation. This model was developed following a robust assessment of legacy project performance and was positively received by the Independent Investment Programme Advisory Group (IIPAG) during a review in October 2022 and was the model that was identified in the paper to the March 2023 meeting of the Committee. This model has been applied to the new station entrance project now ongoing at Stratford and, while the delivery is still in very early stages, the

project has mobilised to site on plan and is progressing well. The true benefit of applying the lessons learned here should be demonstrated by completing the project without the delivery stage cost volatility that have occurred historically. The same model has been applied to the current design stages of both Colindale and Leyton, and this is expected to bring benefit in the construction stages of both schemes.

- 8.7 Lessons learnt have been carried out on six major station upgrades including Bank, Northern Line Extension, Barking Riverside Extension, Victoria and Tottenham Court Road. These lessons have been reviewed and applied to HS2 LU works, ELL Surrey Quays station and Elephant and Castle. They include key lessons on early contractor engagement, robust construction strategies and ensuring requirements focus on good outcomes for end users and customers.
- 8.8 For the Trams TRRS programme, lessons are being learnt from the DLR Rolling Stock Replacement Programme. We have also developed close links with other UK light rail operators to inform the best procurement approach and requirements setting.

9 Commercial

- 9.1 The projects within the programme will have different procurement strategies dependent on mode, scale and complexity.
- 9.2 For LU station improvements, TfL's Civils and Tunnelling works Framework agreement is in use for projects currently in design stages and in delivery such as at Stratford. This framework applies the commercial lessons learned from historical projects by employing Early Contractor Involvement to avoid late scope and design changes. By ensuring the possible constructor of the end state works is also the designer, the framework builds in a right-first-time approach.
- 9.3 Most RSS enhancement projects will utilise TfL's existing Surface Rail Infrastructure Improvement Framework. This has been successfully used recently for two projects under the ELL HIF programme. In December 2022, TfL issued a notice to proceed to Morgan Sindall Infrastructure for the design and build of the Surrey Quays Station Upgrade. In June 2023 TfL awarded the ELL signalling contract to Balfour Beatty for delivery.
- 9.4 Some of our third-party projects have elements delivered externally such as Elephant and Castle stage 1 works (station box and tunnelling). The station box is being delivered by the shopping centre developer and these works are subject of a development agreement. The tunnelling works will be delivered by TfL and the tender for these works was issued in June 2023 with contract award expected in May 2024.
- 9.5 Projects such as HS2 are fully delivered externally. Works to existing TfL assets and new infrastructure are provided to TfL by HS2 and are procured and delivered by HS2 and it's sub-contractors. TfL's costs are paid by HS2 and are covered by a purchase order from HS2.

10 Assurance

- 10.1 As this is a brand new portfolio, assurance reviews have been undertaken within the previous programme structure or as standalone projects.

- 10.2 A TfL Assurance and IIPAG Integrated Assurance Review took place on LU enhancements in November 2022. No critical issues were found and the assurance report was shared with the Committee in March 2023.
- 10.3 A TfL Assurance and IIPAG Integrated Assurance Review will take place on Elephant and Castle later this year in line with their annual review. Additionally, a review will take place on Colindale in advance of the request to draw down against granted Programme and Project Authority subject to the approval requested in this paper).
- 10.4 A TfL Assurance and IIPAG Integrated Assurance Review was undertaken on the former Public Transport portfolio (which includes the Royal Docks programme and ELL programme) in May 2023 and no critical issues were found.

List of appendices to this report:

Appendix 1: List of schemes with financial information

Appendix 2: Legacy Portfolio transfer to New Programme

List of Background Papers:

Programme Structure Committee paper May 2023

LU Enhancements Committee paper March 2023

TfL Project Assurance Reports

Management response to TfL Project Assurance Report

Contact Officer: David Rowe, Interim Director, Investment Delivery Planning
Email: davidrowe@tfl.gov.uk

Appendix 1

Table of schemes with financial information

Project	Gross Financial Authority £'m	Gross EFC £'m	Existing Authority £'m	Requested Authority £'m	Total Authority £'m
Elephant and Castle	£63.0	£86.2	£86.7	£0.0	£86.7
Western Entrance	£26.5	£19.9	£22.5	£0.5	£23.0
HS2	£52.6	£68.1	£33.7	£4.5	£38.2
ELL Enhancement Programme	£69.7	£82.0	£90.9	£0.0	£90.9
Tram Replacement Rolling Stock	£41.6	£80.4	£7.2	£7.7	£14.9
Royal Docks Station Upgrade Programme	£35.0	£38.9	£9.9	£0.0	£9.9
Other Enhancements	£139.1	£171.2	£160.5	£-9.1	£151.5
Colindale SFA and capacity increase	£44.8	£44.7	£26.9	£17.8	£44.7
Leyton SFA and capacity increase	£25.3	£25.3	£17.3	£8.0	£25.3
Knightsbridge SFA and capacity increase	£33.5	£30.9	£33.7	£0.0	£33.7
Paddington SFA and capacity increase	£15.1	£15.6	£16.6	£0.0	£16.6
South Kensington SFA and capacity increase	£5.8	£5.8	£39.0	£0.0	£39.0
Stratford (Southwest Entrance)	£8.7	£8.7	£8.7	£0.0	£8.7
Tottenham Hale ticket hall and entrance	£49.9	£49.9	£50.8	£0.0	£50.8
Works undertaken on behalf of Crossrail (LUCT)	£198.5	£198.5	£198.5	£0.0	£198.5
Thameslink enabling works	£37.6	£37.6	£37.6	£0.0	£37.6
Tower Hill	£8.2	£8.4	£8.9	£0.0	£8.9
Baker Street PTI	£0.0	£0.0	£5.5	£-5.5	£0.0
Moorgate OSD	£8.0	£8.1	£8.4	£0.0	£8.4
West Ham Stephenson Street	£1.8	£1.8	£2.6	£0.0	£2.6
North Greenwich Knight Dragon	£0.3	£0.3	£0.6	£0.0	£0.6
Waterloo Shell	£4.3	£4.4	£4.5	£0.0	£4.5
Waterloo International Terminal	£0.0	£0.0	£0.1	£0.0	£0.1
White City St. James	£2.4	£2.4	£2.4	£0.0	£2.4
King's Cross (Belgrove House)	£1.0	£0.9	£3.4	£0.0	£3.4
Ladbroke Grove option selection	£0.1	£0.1	£0.1	£0.0	£0.1
London Bridge (New City Court)	£0.7	£0.6	£0.5	£0.0	£0.5
Hounslow West option selection	£0.3	£0.3	£1.0	£0.0	£1.0
Finsbury Park Additional Work Items	£0.4	£0.6	£0.5	£0.0	£0.5
Paddington (Enstar House) SFA and Capacity	£1.5	£0.2	£0.5	£0.0	£0.5
Borough minor works	£1.3	£1.3	£1.3	£0.0	£1.3
Walthamstow Central	£0.0	£0.0	£0.0	£0.0	£0.0
Waterloo Elizabeth House	£0.3	£0.4	£0.5	£0.0	£0.5
Acton Works AC02 Demolition & Rebuild	£8.1	£5.9	£5.9	£0.0	£5.9
SFA Close out	£108.9	£108.7	£112.8	£-4.1	£108.7
SFA Development	£11.0	£2.0	£2.0	£0.0	£2.0
Total	£1,005.4	£1,110.4	£1,002.1	£19.8	£1,021.9

In May 2023, the Committee approved the removal of Walthamstow station Enhancements from this programme, and £0.36m of Programme and Project Authority has been brought into the LU Enhancements programme from renewals to allow for scope transfer from AC14 project to AC02 project. These adjustments have been included in the figures representing 'existing Programme and Project Authority for the LU Enhancements sub programme.

Also note the following adjustments are included in the above table: As part of the close out of the legacy SFA work, Programme and Project Authority of £4.1m has been released from SFA close-out, to align the Programme and Project Authority with EFC. As Baker Street Platform Train Interface project has been allocated to the LU Renewals portfolio, a further £5.5m can be reallocated in programme with the consequent adjustment shown in Financial Authority.

In addition, a number of DLR and LO projects have been completed and £9.1m of unused Programme and Project Authority is being released. This included in the "other enhancements" row.

Appendix 2: Legacy Portfolio transfer to New Committee Programme

Legacy LU Enhancements Portfolio transfer to new P&IC Programme (£'m)	Existing Financial Authority	Estimated Final Cost	Existing Programme and Project Authority	Additional Programme and Project Authority Requested	Total Authority	May PIC Transfer of Existing Authority	Change since May
Rail & Station Enhancements	£578.0	£563.6	£590.7	£16.2	£606.8	£578.4	−£12.3
Network Development and Third Party Pipeline	£2.5	£2.5	£4.3	£0.0	£4.3	£4.3	£0.0
LU Renewals	£1.4	£1.4	£1.9	£0.0	£1.9	£1.9	£0.0

* May PIC excluded historic authority (£11.9m) and additional authority granted by Chair's action for TMU AC14 (£0.4m) for LU Enhancements

Transfer to new P&IC Programme: Rail and Station Enhancements (£'m)	Existing Financial Authority	Estimated Final Cost	Existing Programme and Project Authority	Additional Programme and Project Authority Requested	Total Authority	May PIC Transfer of Existing Authority	Change since May
Major Stations	£142.1	£174.2	£142.9	£5.0	£147.9	£120.4	−£22.5
Public Transport	£285.3	£372.5	£268.5	−£1.4	£267.1	£268.5	£0.0

* May PIC excluded transfer of Western Entrance from Major Stations

Overall new P&IC Programme: Rail and Station Enhancements (£'m)	Existing Financial Authority	Estimated Final Cost	Existing Programme and Project Authority	Additional Programme and Project Authority Requested	Total Authority	May PIC Transfer of Existing Authority	Change since May
Total	£1,005.4	£1,110.4	£1,002.1	£19.8	£1,021.9	£967.3	−£34.8

[page left intentionally blank]

Programmes and Investment Committee

Date: 19 July 2023

Item: Safe and Healthy Streets Programme

This paper will be considered in public

1 Summary

	Existing Financial Authority (to 2025/26)	Forecast to 2027/28	Existing Programme and Project Authority	Additional Authority Requested (to end 2025/26)	Total Authority Programme and Project Authority (to end of 2025/26)
Gross Cost	£1,268.1m	£1,307.9m	£773.3m	£43.9m	£817.1m
Gross Income	(£40.1m)	(£40.1m)	(£40.1m)	(£0m)	(£40.1m)
Net Cost	£1,228.0m	£1,267.9m	£733.2m	£43.9m	£777.0m

Table 1: Safe and Healthy Streets Programme

- 1.1 This paper provides an update to the Committee on the achievements and progress of the Bus Enhancement projects which were previously contained within the Public Transport Programme and have now transferred to the Safe and Healthy Streets Programme (the Programme).
- 1.2 The Safe and Healthy Streets Programme is made up of multiple projects that incentivise Londoners to use cars less, and walk, cycle and use public transport more. It is made up primarily of the existing Healthy Streets Programme which last obtained approval for Programme and Project Authority in March 2023. The addition of the Bus Enhancement projects from the previous Public Transport Programme alongside bus priority brings together inter-connected activities to deliver the Bus Action Plan (and the customer specific actions within that Plan) and recognises the importance of holistic investment in the bus network, alongside cycling and walking, to reduce car use and increase travel by sustainable modes. Similarly, the addition of bus safety schemes, such as Intelligent Speed Assistance (ISA), alongside the Safer Junctions and Lowering Speed Limits Programmes aligns activities to improve safety on London's road network.
- 1.3 As part of the previous Public Transport Programme, the Committee approved in July 2022, £13.2m additional Programme and Project Authority for the Bus Enhancement projects through to the end of 2023/24. This request seeks approval for increased Programme and Project Authority of £43.9m. This will cover the delivery planned in 2023/24 through to the end of 2025/26.

1.4 The focus of this paper is to:

- (a) present the Bus Enhancement projects achievements since the previous submission in July 2022;
- (b) summarise the financial allocations for 2023/24 and the associated outputs; and
- (c) provide assurance to the Committee on the progress of the Bus Enhancement projects.

1.5 The Programme will return annually to the Committee for authority approval. These Bus Enhancement projects will be captured in future updates of the Safe and Healthy Streets Programme.

1.6 A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt 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 Recommendations

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

- (a) approve additional Programme and Project Authority of £43.9m for the Safe and Healthy Streets Programme to continue delivery of Bus Enhancement projects through to the end of 2025/26, bringing the total Programme and Project Authority to £817.1m;**
- (b) approve additional Procurement Authority for the sum set out in the supplementary information on Part 2 of the agenda in relation to the Old Street Roundabout project;**
- (c) note that matters for which Authorities are sought above include commitments that extend beyond the period of the 2023/24 Budget and provision will, therefore, need to be made for those commitments in future Budgets; and**
- (d) note that Procurement Authority for the various initiatives will be sought at officer level in accordance with Standing Orders.**

3 Background

Strategic Context

3.1 The Mayor's Transport Strategy has three key themes: healthy streets and healthy people; a good public transport experience; and new homes and jobs. London's buses are the most used form of public transport in the Capital and play a central role in delivering these themes. To achieve this TfL has published the Bus Action Plan and developing the Bus Safety Strategy which set out our vision for a safe and attractive bus network.

- 3.2 The Bus Action Plan includes actions to build and broaden the appeal of the bus service. A modern bus service must provide an inclusive customer experience. It must be safe and secure, offer attractive journey times and provide the connections people need, would enable Londoners to live low-carbon, car-free lifestyles.
- 3.3 Within the Bus Action Plan there is a supporting Bus Customer Action Plan (BCAP) which is focussed on delivering a step-change in customers' perceptions and experiences of bus travel. This can be achieved through the provision of better information, and meeting customer expectations of having a modern and comfortable experience at bus stops and on buses.
- 3.4 The Safe and Healthy Streets Programme includes actions to achieving Vision Zero and the aim for no one to be killed in or by a London bus by 2030. The programme is wide ranging, and includes key themes of safe speeds, safe streets, safe vehicles, safe behaviours and post-collision response.
- 3.5 Encouraging people who live in outer London to switch car trips to public transport is critical to achieving the Mayor's aim that 80 per cent of trips are made by active, efficient and sustainable modes by 2041. We are now developing proposals for the Superloop – a network of express bus routes, circling the entire capital, which would connect key outer London town centres, stations and transport hubs. To deliver this, capital investment would be required, such as improvements to bus assets along the routes to maximise the benefits of these new services. Public consultations have now begun in relation to the proposed implementation of this new network.

4 Programme Delivery in 2022/23

- 4.1 The total investment for Bus Enhancement projects in 2022/23 was £3.4m. At the time of the last update to the Committee the planned investment was to be £6.0m. Due to resource constraints, projects progressed slower than expected, particularly on the technology-based projects.
- 4.2 Appendix 1 provides a summary of the 2022/23 forecast and actual outputs.
- 4.3 We completed research to develop improved customer proposition and rolled out an extensive marketing campaign to encourage and change perceptions of bus travel. The project increased the number of Countdown signs on the network and developed potential for other new at-stop digital information screens to be introduced. As part of a trial on Route 63, buses with enhanced customer features were introduced. Elements included improved customer information on board, a skylight and on seat USB charging points. The project progressed technology improvements for the possible provision of better information for customers including trials at stops.
- 4.4 Due to funding constraints, there was no capital funding for Bus Safety Phase 2 project in 2022/23, however the project will be re-mobilised in 2023/24.

5 Programme Delivery in 2023/24

- 5.1 As these projects span multiple years, this paper requests approval of additional Programme and Project Authority to continue delivery to 2025/26.
- 5.2 Appendix 2 details the planned expenditure and forecast outputs in 2023/24. Key activities planned on the BCAP programme include progressing to a decision point on proof of concept for technology projects to enhance customer information. This first phase of development will need to demonstrate that the proposed solution will fulfil the project requirements and be fit for implementation across the network to deliver the desired benefits. The BCAP programme will also deliver asset-based projects including improvements to stops and shelters with increased information to improve customer experience in using the network.
- 5.3 Bus Safety Phase 2 will re-mobilise and retrofit safety initiatives onto vehicles that still have a substantial number of years of London service ahead, allowing them to deliver safety benefits that were not available at the point of manufacture. Buses in the fleet, both operator owned and TfL owned, will be selected to be retrofitted based on their age, the time left in expected service, and routes where the most benefits have been assessed to be achieved. Priority will initially be given to electric vehicles to bring them to the same safety standard as new buses entering service. These initiatives include:
 - (a) ISA to limit the vehicle speed to that of the speed limit, informed by a linked map;
 - (b) Responsive Acoustic Vehicle Alerting System to ensure that our quietest vehicles can be heard on the network, linked to a mapping system that controls the noise emitted to be at a volume suitable for the environment and the time of day;
 - (c) Camera Monitoring Systems to replace wing mirrors with cameras to give drivers greater visibility from a central seated position; and
 - (d) driver cab cooling improvements to address driver comfort and a potential source of fatigue.
- 5.4 In addition, the Bus Safety Phase 2 will scope new safety initiatives and trials such as fatigue detection technology. An ongoing implementation plan will be developed and refined for future years, informed by the results of operational research projects and the assessed and monitored benefits from the retrofitted vehicles.
- 5.5 The Safe and Healthy Streets Programme will also include the emerging deliverables for the proposed Superloop network of bus routes which would help improve connections and journey times in outer London.
- 5.6 Appendix 4 shows pictures of BCAP and Bus Safety projects.
- 5.7 Periodic reviews will be used to assess the level of delivery achieved, risks, and whether additional commitments can be made through change control processes. Expenditure for 2024/25 relates to scope and commitments developed in 2023/24. Therefore, future commitments will be subject to available funding and ongoing reviews to ensure we deliver the best value for money within the overall objectives

and context of the Bus Action Plan. Plans for these projects are multi-year due to the number of buses and bus assets that would be impacted and where appropriate contractual commitments will be progressed utilising existing contracts with bus operators.

6 Bus Enhancement risks and milestones

Risks

6.1 The top risks associated with delivery of the Bus Enhancement projects are shown in Table 2 below:

Risk ID	Risk Description	Mitigation
1	Supply chain risk of lengthy lead-in times for certain suppliers and risk of suppliers' capabilities.	Active engagement with suppliers to improve understanding of time and capability constraints. Coordinate with other TfL teams where possible.
2	TfL will act as the coordinating function across the retrofit programmes with bus operators as the owners of the buses as well as specific Original Equipment Manufacturers This will also seek to minimise operational dis-benefits to having a vehicle taken out of service for longer than necessary.	Active engagement with all relevant parties to have coordinated retrofit programme.
3	There is a risk of adequate internal resources.	Succession planning and nurturing our staff.

Table 2: Top risks from Bus Enhancement Projects

Milestones 2023/24

6.2 There are no strategic milestones for Bus Enhancement projects in 2023/24.

7 Commercial Strategy

7.1 Bus Enhancement projects often utilise existing contracts with bus operators. Where this is not the case, separate procurements are undertaken.

8 Financial Implications

8.1 The 2023 TfL Budget provides the Financial Authority needed to deliver the scope of the works set out in this request. The Financial Authority and the Programme and Project Authority requests for Bus Customer Action Plan and Bus Safety Phase 2 are reflected in Tables 3 and 4 below.

	Existing Financial Authority (to 2025/26)	Forecast to 2027/28	Existing Programme and Project Authority	Additional Authority Requested (to end 2025/26)	Total Authority Programme and Project Authority (to end of 2025/26)	Programme and Project Authority to be Requested in future years
Gross	£30.7m	£47.1m	£17m	£13.3m	£30.3m	£16.8m
Income	(£0m)	(£0m)	(£0m)	(£0m)	(£0m)	(£0m)
Net	£30.7m	£47.1m	£17m	£13.3m	£30.3m	£16.8m

Table 3: Summary of Bus Customer Action Plan

	Existing Financial Authority (to 2025/26)	Forecast to 2027/28	Existing Programme and Project Authority	Additional Authority Requested (to end 2025/26)	Total Authority Programme and Project Authority (to end of 2025/26)	Programme and Project Authority to be Requested in future years
Gross	£32.3m	£56.3m	£0.7m	£31.6m	£32.3m	£24m
Income	(£0m)	(£0m)	(£0m)	(£0m)	(£0m)	(£0m)
Net	£32.3m	£56.3m	£0.7m	£31.6m	£32.3m	£24m

Table 4: Summary of Bus Safety Phase 2

8.2 The Safe and Healthy Streets programme includes legacy Healthy Streets Programme as well as the Bus Enhancements projects previously delivered under the Public Transport. The transfer of legacy matters into this newly structured Programme are described in Appendix 3.

Transport Activity		Actuals	Actuals	Actuals	Actuals	Actuals	Actuals	TfL Budget	TfL Budget/Plan				Total forecast £m	Authority - Years to 2025/26 £m
		2017/18 £m	2018/19 £m	2019/20 £m	2020/21 £m	2021/22 £m	2022/23 £m	2023/24 £m	2024/25 £m	2025/26 £m	2026/27 £m	2027/28 £m		
Bus Enhancements														
Financial authority														
ProgrammeTotal		8.0	2.3	2.4	1.2	2.9	5.1	12.9	21.5	24.0	19.3	21.5	121.1	80.3
Budget or Plan	TfL Element	8.0	2.3	2.4	1.2	2.9	5.1	12.9	21.5	24.0	19.3	21.5	121.1	80.3
	Third Party Funding	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Authority Request														
ProgrammeTotal		8.0	2.3	3.3	1.2	2.9	5.1	11.0	21.5	24.0	19.3	21.5	120.1	79.3
Budget or Plan	TfL Element	8.0	2.3	3.3	1.2	2.9	5.1	11.0	21.5	24.0	19.3	21.5	120.1	79.3
	Third Party Funding	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Authority request														
Programme and Project Authority	Committee Approved												35.4	35.4
	Additional authority requested												43.9	43.9
Future Authority Requests													40.8	

Table 5: Summary of the Bus Enhancement projects Financial Authority and Programme and Project Authority (above excludes legacy Healthy Streets Programme)

9 Equality and inclusion

9.1 TfL has an obligation under the Equality Act 2010 to:

- (a) eliminate discrimination, harassment, victimisation and any other conduct that is prohibited by or under the Equality Act 2010;
- (b) advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and
- (c) foster good relations between persons who share a relevant protected characteristic and persons who do not share it

9.2 The Bus Enhancement projects work to improve the bus experience for customers and implement safety improvements towards achieving Vision Zero. Equality Impact Assessments will be completed on projects as required.

10 Assurance

10.1 TfL Project Assurance conducted an Integrated Assurance Review on the Bus Enhancement projects as part of the review of the Streets, Bus and Rail and Sponsored Services (RSS) Renewals Programme in May 2023. An independent review was also undertaken by the Independent Investment Programme Advisory Group. The review had no critical issues and identified ten general recommendations including one specific to Bus Enhancement projects.

List of appendices to this paper:

Appendix 1: 2022/23 forecast and actual outputs

Appendix 2: 2023/24 planned expenditure and forecast outputs

Appendix 3: Public Transport Portfolio transfer to Current Programme

Appendix 4: Pictures of BCAP and Bus Safety projects

Exempt supplementary information is included in a paper on Part 2 of the agenda.

List of Background papers:

IIPAG and TfL Project Assurance Reports and

Management response to IIPAG and TfL Project Assurance Reports

Programmes and Investment Committee Papers: Public Transport Programme 20 July 2022, Programme Structure 17 May 2023 and Healthy Streets Programme 1 March 2023

Old Street Roundabout Project, Programmes and Investment Committee, 1 March 2023

Variation Recommendation for Old Street Roundabout - Main Contract – MS Construction & Infrastructure Ltd SAP Ariba Ref: WS1494518767

Contact Officer: David Rowe, Interim Director of Investment Delivery Planning
Email: davidrowe@tfl.gov.uk

Appendix 1: 2022/23 forecast and actual outputs

Programme	Sub-programme/ Asset	2022/23 allocations (£m)	2022/23 spend (£m)	2022/23 expected output	2022/23 outputs
Bus Enhancement	Bus Customer Action Plan	5.9	3.4	Implement improvements to Route 63, conduct qualitative and quantitative customer research, install new customer welcome signs on buses, rollout of 211 Countdown signs.	Planned improvements implemented as described. After delays, 139 Countdown signs have been installed, for a total of 274 signs. The technology-based projects progressed slower than expected due to resource constraints. Some sub-projects were deferred to future years.
Bus Enhancement	Bus Safety Phase 2	-0.1	0	No funding was available. Authority was reduced	No outputs
TOTAL		5.9	3.4		

Appendix 2: 2023/24 planned expenditure and forecast outputs

Programme	Sub-programme/ Asset	Forecast Expenditure (£m)	2023/24 expected output
Bus Enhancement	Bus Customer Action Plan	5.4	Progress to decision point on proof of concept for technology projects. These include further development of automatic passenger counting and bus 'busyness' technologies. The project will return to the Committee for further approval to proceed into implementation once the proof of concept work is complete. Deliver asset-based projects including improvements to stops and shelters.
Bus Enhancement	Bus Safety Phase 2	7	Project will re-mobilise a progress safety initiatives including retrofitting to existing buses of Intelligent Speed Adaptation, responsive Acoustic Vehicle Alerting System, Camera Monitoring Systems and driver cab cooling improvements. Buses in the fleet will be selected to be retrofitted based on best value assessments.
TOTAL		12.4	

Appendix 3: Public Transport Portfolio transfer to Current Programme

Legacy Public Transport Portfolio Transfer to Current Programme	Existing Financial Authority (to 2025/26)	Existing Programme and Project Authority 2022/23 and future years	Additional Authority Requested 2023/24 to 2025/26	Total Authority	Prior Years	Forecast 2023/24 to 2027/28	Total Forecast	May Transfer of Existing Authority	Change since May
Streets, Bus Rail and Sponsored Services*	£495.3m	£333.1m	£200.8m	£534.0m	£276.6m	£404.5m	£681.2m	£336.7m	(£3.6m)
Rail & Station Enhancement Programme	£285.3m	£268.5m	(£1.4m)	£267.1m	£171.9m	£200.6m	£372.5m	£268.5m	£0m
Safe and Healthy Streets Programme	£80.3m	£35.4m	£43.9m	£79.3m	£21.3m	£97.3m	£120.1m	£35.4m	£0m
Technology Programme	£1.8m	£3.6m	£0.0m	£3.6m	£0.1m	(£0.1m)	£0.0m	£0.1m	£3.5m

Legacy Healthy Streets Portfolio Transfer to Current Programme	Existing Financial Authority (to 2025/26)	Existing Programme and Project Authority 2022/23 and future years	Additional Authority Requested 2023/24 to 2025/26	Total Authority	Prior Years	Forecast 2023/24 to 2027/28	Total Forecast	May Transfer of Existing Authority	Change since May
Safe and Healthy Streets Programme	£1,187.8m	£737.8m	£0.0m	£737.8m	£386.1	£761.7m	£1,147.7m	£737.8m	£0m

Overall Current Programme: Streets Bus and Rail and Sponsored Service Renewals	Existing Financial Authority (to 2025/26)	Existing Programme and Project Authority 2022/23 and future years	Additional Authority Requested 2023/24 to 2025/26	Total Authority	Prior Years	Forecast 2023/24 to 2027/28	Total Forecast	May Transfer of Existing Authority	Change since May
Streets Bus and Rail and Sponsored Services*	£1,268.1m	£773.2m	£43.9m	£817.1m	£407.4m	£864.8m	£1,348.0m	£773.2m	£0m

Appendix 4: Pictures of BCAP and Bus Safety projects

Bus Customer Action Plan introduced new features at stops and on-board buses, specifically trialled on Route 63. These features have been evaluated to understand their value to customers.



Route 63 interior

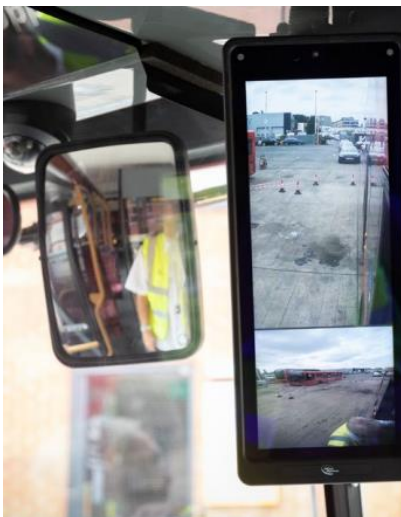


Priority seating improvements



Digital bus flag

Bus Safety Phase 2 will implement safety measures on buses including retrofitting technology to buses as well as new safety features.



Camera monitoring system monitor display



Camera monitoring system camera



ISA bus sticker

Programmes and Investment Committee



Date: 19 July 2023

Item: Capital Efficiencies Report 2022/23

This paper will be considered in public

1 Summary

- 1.1 This is the second annual report of the pan TfL Capital Efficiency Programme, covering the financial year 2022/23. It sets out how we have delivered on the milestones contained in our Capital Efficiency Plan, together with the efficiencies realised during the year.
- 1.2 As well as being TfL's annual report on this matter, this report also satisfies the requirement set out in the funding settlement letter of 30 August 2022: "We expect TfL to continue delivering its 2021 Capital Efficiency Plan (CEP) and pursue all opportunities to make efficiencies. To this end, TfL will continue to present DfT with its annual efficiencies report as set out in the CEP, including a summary of efficiency delivery against target; commentary on delivery; case studies; supporting metrics; and a forward look."
- 1.3 A paper is included on Part 2 of the agenda which contains exempt supplemental information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains commercially sensitive 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 exempt supplementary information on Part 2 of the agenda.**

List of appendices to this report:

Appendix 1: Capital Efficiencies Report, 2022/23

Exempt supplementary information is included in a paper on Part 2 of the agenda.

List of Background Papers:

None

Contact Officers: Michael Cooper, Director of Programme Management Office
Email: michaelcooper1@tfl.gov.uk

[page left intentionally blank]

Introduction

This is the second annual report of the TfL Capital Efficiency Plan (CEP), covering the financial year 2022/23. It sets out how we have progressed and delivered on targeted initiatives and milestones, together with the efficiencies realised during the year.

As well as being TfL's annual report, this report also satisfies the requirement set out in the August 2022 funding agreement letter: "We expect TfL to continue delivering its 2021 Capital Efficiency Plan (CEP) and pursue all opportunities to make efficiencies. To this end, TfL will continue to present DfT with its annual efficiencies report on this topic as set out in the CEP, including a summary of efficiency delivery against target; commentary on delivery; case studies; supporting metrics; and a forward look."

The objectives of the CEP are to:

- allow us to deliver better outcomes within a given financial envelope, getting us closer to delivering the objectives in the Mayor's Transport Strategy;
- demonstrate to industry and our supply chain that we are serious about working together to improve how we deliver and how we work together;
- provide transparency in our capital delivery performance to stakeholders.

Our CEP annual reporting includes:

1. Confirmation of the efficiency target and whether anything has happened that should result in a change to that target (for example, if Government found it necessary to change the level of funding available to TfL from the original indications during the original five year CEP period (2021/22 to 2025/26) this could impact on TfL's ability to deliver efficiencies)
2. Details of each "banked" and "evidenced" efficiency with the total value of efficiencies achieved to date
3. The value of "claimed" efficiencies that have not yet completed validation (if any are outstanding at the time of the report)
4. Case studies and other supporting metrics
5. Commentary on milestones, actions and initiatives that have been delivered
6. Details of "efficiency to be found" targets embedded in the latest Budget and Business Plan
7. It will also include a forward look of the level of efficiencies that the workstreams are working towards achieving and the level of business-as-usual efficiencies, together with an indication of the status of the plans.

These are set out below:

1. Efficiency target range

In our original Capital Efficiency Plan, we targeted a five-year efficiency profile from 2021/22 to 2025/26. Recognising that initiatives will take time to impact on costs, the profile ramps up with a target range in each year.

This ambition was informed by benchmarking against other asset intensive organisations in the UK that have similar regulatory frameworks, similar supply chains, and operate in a similar macroeconomic context. These ranges are based on existing embedded efficiencies combined with the impact of our initiatives, as well as ambitious value engineering and risk-release challenges. A range better represents the uncertainties in our future planning and assumptions.

During the first part of 2022/23, TfL continued to be subject to funding uncertainty, which in turn creates significant risk to achieving efficiencies in two main ways:

- **Long term planning:** It is recognised that certainty in planning and funding creates an environment conducive to efficient investment. The DfT’s 2013 paper ‘Action on Roads’ stated, “Certainty will enable savings of up to 20% on maintenance and improvement work”, while 2018 research by the Railways Industry Association stated that ‘boom & bust’ work profiles cause a 30 per cent increase in the cost of infrastructure. The Government has acknowledged that the funding certainty afforded to other transport infrastructure operators such as Network Rail and National Highways can enable savings of some 10 to 15 per cent on maintenance and improvement work.
- **Impact of project / scope reductions:** If TfL has to reduce its forecast capital expenditure then it will limit how much efficiency can be delivered. In the simplest terms, the same percentage efficiency will deliver a lower financial saving if the capital programme is smaller. However, the impact is likely to be greater than that. Efficiencies will disproportionately target expenditure that is less committed or at an early stage of the lifecycle, as this is where the opportunity lies. However, these are also the areas of the capital programme that are more likely to be removed or de-scoped due an overall reduction in capital funding.

The August 2022 funding agreement with government provided TfL with funding certainty to March 2024. While welcome, this is still significantly less than the five year funding certainty envisaged in the original CEP report. In addition, the level of funding set out in the August 2022 agreement, while more than the “Managed Decline” scenario, remained significantly less than envisaged in the original CEP report.

The Capital Efficiency Target for 22/23 is based on planned spend as set out TfL’s 2023 revised Budget, excluding any project where any cost reduction arising from achievement of an efficiency would be passed back to a third party and not save TfL money.

2. Total value of efficiencies evidenced

“Evidenced” efficiencies are those TfL has achieved and can substantiate. During 2022/23 TfL has been able to evidence £52.2m of efficiencies, exceeding the top end of the Efficiency target range for 22/23 of £24m - £40m.

The breakdown of the “Evidenced” efficiencies by Chief Officer is below.

Chief Capital Officer	£31.4m
Chief Operating Officer	£17.2m
Chief Customer and Strategy Officer	£3.6m
Total	£52.2m

3. Total value of claimed efficiencies

“Claimed” efficiencies are those that are unable to be evidenced in time for inclusion in this report. TfL’s definition of efficiency requires projects to complete before risk release can be evidenced as an efficiency – as unforeseen risks may subsequently arise resulting in an increase in risk budget. All efficiencies achieved in 2022/23 were able to be evidenced and so the number of “claimed” efficiencies is nil.

4. Progress commentary

TfL seeks to deliver efficiencies from CEP workstreams, business as usual activities and change improvement programmes. As shown in the table below some workstreams will deliver cashable efficiencies directly, others will improve efficiency indirectly.

Categories

Project controls		Indirect
Investment Planning		Indirect and Direct
Benchmarking		Indirect and Direct
Accountabilities and Governance	Workstreams aligned to efficiency initiatives	Indirect
Commercial		Direct
Engineering		Direct and Indirect
Access		Direct
Value engineering		Direct
Process improvement		Indirect and Direct
Risk management	Aligned to business as usual efficiency activities	Direct
Internal resourcing		Direct

- some workstreams will provide a greater cashable contribution than others, a number of the initiatives are expected to lead to efficiencies being realised by both other workstreams and for 'Business as Usual' (BAU) activities, rather than direct cashable efficiencies.
- the workstreams with likely lower (or nil) cashable savings are still critical to our improvement because they create the right conditions and environment for success but are considered less likely to result in directly attributable savings. For example, the Benchmarking workstream will highlight efficiency opportunities, but those opportunities will likely be enabled through other workstreams e.g. commercial, access, risk.
- furthermore, many of the workstreams will only impact on projects not yet in delivery. For example, to meet efficiency targets, projects in their early stage will likely have to deliver greater percentage saving against their forecast that projects already in construction will need to deliver.
- some activities originating from CEP will be delivered through the Our TfL Programme (OTP) change programme and will continue to be reported in the annual CEP reports.

5.1 Project Controls

5.1.1 Overview

TfL has mature processes for controlling projects (Pathway) but there is a recognition that universal adoption across the business is increasing over time. This workstream's intent is to improve the scrutiny and focus on project decisions at each stage of the lifecycle, particularly those in the early stages, by delivering the initiatives as set out below.

How will this make us more efficient? Having poorly controlled projects may lead to unnecessary costs – with projects not being stopped (or paused) where and when appropriate, or scope not being adequately controlled.

5.1.2 Initiatives - in year progress

Development of Risk Improvement Programme (in progress)

Efficiencies are being sought through a change programme which will enhance TfL's approach to risk and opportunity management across all projects and programmes within the investment programme. More than 45 initiatives are planned which will promote enhanced risk supported decision making, increase the maturity of time and cost risk assessments and provide stronger assurance and transparency of risks across the project lifecycle.

The full programme of improvements is expected to be embedded into the business by winter 2024. The first tranche of improvements include; new tools to enhance the transparency of Quantitative Risk Assessments to support decision making, intelligent risk reporting via Active Risk Manager and Power BI, the ability to interrogate and further mitigate against risks related to strategic milestones, avoided duplication of prolongation related risks, advanced early stage risk assessments on larger projects and a self-serve tool to support delivery led risk management on smaller projects.

Change control automation and reporting (in progress)

The initial aim of this initiative is to implement a standardised change control process across capital delivery and an automated tool to capture all changes. This tool will enable the development of reporting and the ability to present any significant changes to the Executive team and will be deployed in phases across all TfL directorates and embedded as part of business as usual. In parallel we will develop the new reports at project, programme, portfolio and executive levels.

Pathway Improvements (in progress - collaboration with the Engineering and Asset Strategy Workstream)

Pathway is the delivery process mandated to all TfL projects. TfL Engineering own 184 of the Pathway products, of which 174 have not been updated in the last 5 years. Most present a productivity risk by either providing erroneous instruction leading to errors or non-standardised ways of working leading to the need for excessive work. The aim is to update **and improve all remaining 174 products within 3 years**, removing those that are not needed. This will result in reduced workload and error rate across all active projects.

5.1.3 Look Ahead

Reporting improvement programme and automation (winter 2023)

The introduction of consistent collation of project data and progress through automation will enable the clean rolling up of project performance information to inform timely decision making and project interventions. The initial focus is on the TfL Investment Group Report and has now been expanded to deliver periodic reports for project, programme and portfolio levels. This will reduce the amount of manual data handling primarily for the Programme Management Office and Finance teams who collate the data into periodic reporting packs allow them focus on value-add activity such as reviewing and streamlining processes and data quality processes and improving data quality. It will also enable a consistent way for project and sponsorship teams to interact and utilise the new suite of reports.

The first tranche will be focussed on streamlining and automating Executive Committee level reporting.

Systems and data – build out improvements plan (winter 2023)

The systems improvements, which are currently in the planning and design stage, will increase the overall delivery resilience, support the strategic direction, and make better use of our data. The systems digital strategy underpins all the other sub workstreams, most notably the reporting and application of an integrated baseline. The considerable work undertaken to date, including data quality improvements, data taxonomies and frameworks provides a solid foundation for the embedding of future improvements. It is aligned to the TfL Tech and Data strategy and is based on industry best practice. This will provide an absolute version of the truth, integrating disparate data sets to interrogate them for patterns that will support organisational learning, and more robust management decisions.

Implement performance measurement baseline for capital project and programmes (spring 2024)

This initiative has matured in its focus and will be narrowed to define the key metrics of project performance, in parallel with the development of our single repository of project information (for example the central project list), ensuring consistent application of the work breakdown structure. The aim is to implement the required process steps and tools to work towards an integrated baseline of scope, cost and schedule. This will allow us to assess progress more accurately, give greater visibility to the cost and time performance indicators based on integrated data.

5.2 Investment Planning

5.2.1 Overview

The initiatives in this workstream will improve efficiency and were designed to ensure that we start the right projects and consider all available scope and delivery options at the outset. There are improvements to be made around ensuring that projects not only optimise value but are fit for our needs and outcomes and that we have a clear pipeline of schemes for each outcome / portfolio.

Furthermore, we are working to continually improve the feedback loop on lessons learnt from projects we have delivered, to ensure that we fully understand their benefits and effectiveness. This information is crucial in guiding the next generation of interventions.

5.2.2 Initiatives – in year progress

Updated appraisal guidance and tools to enhance Value for Money evidence (in progress)

Recent refinement of the guidance and tools used to conduct value for money analysis has enhanced clarity around the 'how to', and the sharing of worked examples. This has included following a 'golden thread' through initiative documentation; expectations at options identification and assessment stages; the development of new impacts calculators such as ones for carbon emissions 'costs' and potential savings, and ambience benefits; and the adoption of the Department for Transport's Active Mode Appraisal Toolkit. These changes and associated guidance were delivered in March and April 2023, with development support planned throughout 2023/24.

Embedding the Strategic Outcome Framework (SOF) (in progress)

The intent of this initiative was to develop single set of strategic project outcomes against which the potential order of magnitude contribution of any initiative could be identified. The outcomes span economic, social and environmental effects. The SOF can be used to both identify the relative cost-effectiveness of different types of initiative against specific outcomes, and the absolute contribution of project and programmes – individually and in combination – to strategic objectives as outlined in the Long-Term Capital Plan and Mayor’s Transport Strategy. Successfully launched in 2021 it was a key input to the enhancement prioritisation work for the 23/24 budget, and all new projects are being scored at Gate 0 using the SOF framework to help inform forward prioritisation. The process will continue to be developed and applied as part of the 24/25 business planning process.

Implementing recommended changes to Programme Structures (winter 2023)

A review of the programme structure within the remit of the Programmes and Investment Committee has been completed. Changes proposed from this review seek to simplify and reduce the number of Programmes within the remit of the Committee and better reflect TfL’s new operating model. Going forward these changes are expected to deliver more efficient governance, enhance investment prioritisation, and support improved assessment of initiatives against strategic outcomes. The changes were approved at the meeting of the Programmes and Investment Committee on 17 May 2023, with a roll-out plan to be developed to support implementation of recommendations being taken forward.

5.2.2 Look ahead

Embedding Pathway Stage 7 to enhance benefits monitoring (spring 2024)

A formal post-project stage has been added to TfL’s project lifecycle process, to confirm completion of agreed benefits realisation and lessons learnt activities. This change will fortify the planning, conduct, and reporting of benefits management activities throughout the lifecycle by clarifying accountability and responsibility for post-project delivery work. It will also enhance the consistency and visibility of monitoring and evaluation products across the investment programme and help identify which initiatives are the highest priority for ongoing analysis after the traditional project ‘close’. These changes were approved in February 2023 and are now being rolled out throughout this financial year across each investment programme, with an initial focus on the highest value / complexity / innovative schemes to help inform future investment planning priorities.

5.3 Benchmarking Workstream

5.3.1 Overview

Together with the TfL Innovation Strategy and the TfL Capital Delivery Innovation Strategy, this Benchmarking workstream will identify the key focus areas of improvements, according to spend and appetite from the business, and develop the internal capabilities to meet these requirements.

Effective benchmarking will compare our activities, performance, or processes to internal and / or external comparators, using the outputs to prompt questions, helping provide answers and ideas as to how we might improve and provide evidence to support decisions. It will also provide confidence to TfL management and external parties that TfL realistically compares itself with the

best in class and makes effective improvements as a result. Benchmarking will be conducted where the results can be valuable to us and have practical application. It is not an end in its own right; it must have value.

How will this make us more efficient? Benchmarking will be conducted where the results can be valuable to us and have practical application. It is not an end in its own right; it must have value and then be utilised by the various teams involved in the development, delivery of a project and the realisation of its benefits.

5.3.2 Initiatives – in year progress

Development of the TfL Benchmarking Strategy (in progress)

Reacting to the introduction of the TfL Value Chain and the formation of Chief Capital Office (CCO), a draft Benchmarking Strategy has been developed, is undergoing internal review and will be presented to the Capital Strategy Delivery Group (CSDG) meeting for endorsement. Benchmarking has been aligned with the TfL Innovation Strategy and the TfL Capital Delivery Innovation Strategy. The outcome of this collaboration is the TfL Challenges document that sets the strategic direction focusing on six key areas: 1. Mechanisation; 2. Materials; 3. Plant & Equipment; 4. Data; 5. Signalling; 6. Training & Testing.

The draft CCO Benchmarking Strategy has been strongly linked to the output and best practise identified from the Transport Industry Efficiency Strategy (TIES) and proposes the embedment of Communities of Practice in TfL. This will significantly improve industry wide benchmarking supporting the TIES long term goals.

Leveraging lessons from Crossrail (in progress)

To enhance our learning and incorporate recently acquired experience into our thinking, the TfL Benchmarking team has worked very closely with the Crossrail Legacy team to ensure Knowledge and Lessons are transferred to TfL. This has been challenging due to the focus required from the Crossrail team to successfully open the Elizabeth Line as well as the consistent loss of resource from the closing down programme. Therefore, in 2023, with the support from the Value and Continuous Improvement (VCI) Team, Crossrail will facilitate a series of workshops to allow TfL to engage with Crossrail to discuss the legacy documentation already transferred. The output from these sessions will capture key lessons and will be implemented by the TfL accountable owner (CSDG will identify functional owners to lead the embedment of these lessons). The VCI Team will track and record progress to ensure the completion of the knowledge transfer to TfL.

5.3.3 Look Ahead

Development of the Quality Strategy (spring 2024)

With the establishment of the Chief Capital Office and focus on aligning project delivery across the organisation, there is the opportunity to develop a Quality Strategy that reflects the new organisation and to establish a Quality Policy and explore options for implementation approach.

On most of our major programmes quality is being managed by the supplier, with varying requirements in our contracts, preventing a primary and consistent view for TfL to measure internal quality and develop improvement plans. We have the opportunity to explore standardised contract works information and understand how this can be supported by a stronger Quality and Assurance team. This could potentially realise efficiencies across the entire Capital Programme, for example industry data shows that rework costs resulting from poor quality is approximately 20 per cent of total cost.

Embedment of the Benchmarking Strategy (spring 2024)

Upon adoption of the Benchmarking Strategy the focus will be on embedding the proposed best practises into the business. This will also need to include a review of the current processes, organisation design, tools and systems to enable the strategy.

While works can and will progress to support the TfL Challenge six priorities, the long-term goals of effective benchmarking must remain a focus of the organisation to enable enhanced future benefits to TfL and across all Investment Projects and Programmes.

As with many other of the initiatives throughout this document, there is a close inter-relation in their application and realisation of their full benefits. The CEP Benchmarking and Project Control workstreams are no exception and must continue to align to ensure success. For example, the requirements of benchmarking workstream interface and are heavily dependent on many of the programme controls improvements such as, but not limited to: The Data and Systems project; the introduction of performance baselines and the reporting improvement project.

5.4 Accountabilities and Investment Governance

5.4.1 Overview

This workstream has advanced from its initial position of exploring multiple focus areas towards focusing on a narrower scope around the review of TfL's investment governance framework and practices. It is essential to continue to make TfL's investment governance simpler and more effective to aid better decision making, ensuring that we invest our resources in the right projects, with the right delivery options and aligned to our needs and outcomes. Having an efficient decision-making process is therefore fundamental to these aims.

How will this make us more efficient? The introduction of a new executive structure in February 2022 prompted a holistic review of TfL's governance, including investment governance, business rhythm reporting and delegated authority, alongside other governance forums such as performance and operations. This workstream will explore how TfL will align investment governance to the new structure and value chain, focusing on decision-making, accountabilities and responsibilities, allowing TfL to speed up our processes and ensure that the right people are involved at the right time throughout each phase of the project.

5.4.2 Year in Progress

Consolidating Financial Forums (achieved)

Following 2022 review it was determined that there was the opportunity to move project approvals from the Financial Commitment Oversight Group (FCOG) to the Investment Group (IG) which centralised project decision making into one forum which was implemented in July 2022. In January 2023, following the funding agreement and the introduction of systemised controls through SAP Ariba, FCOG was disbanded.

Project decision changes (achieved)

This opportunity focused on the delegation of certain approvals from Chief Officers at Investment Group level to Directors at local review groups for certain values, with visibility of decisions taken below Investment Group captured in a new central tracker and using new streamlined templates. In January 2023, three improvements were introduced. These can be summarised as increased thresholds for items requiring Investment Group approval, simplified documentation requirements

for risk drawdowns, Programme and Project Authority drawdowns and project initiation and new reporting of pipelines of papers and decisions. The ability to delegate was supported by improvements to reporting which provide Investment Group with visibility of the Commercial Assurance Meeting pipeline and outcomes.

5.4.3 Look Ahead

Conduct 'As is' review and develop high-level design (spring 2023)

The main focus over this new financial year will be to conduct a 'as is' review of the governance processes by which we ensure that we invest our resources in the right projects and assets to move London forward safely, inclusively and sustainably. The aim is to improve investment governance by creating an empowered culture with efficient decision-making, facilitated by standard and simple processes to ensure that the right decisions are made at the right time.

To achieve this, four areas of focus have been identified.

1. Prioritisation and Portfolio Management - *review of a process for the prioritisation funding by year within a portfolio and how this is managed*
2. Change Management and Authority Review - *creation of a governance process which is proportionate to the project concerned for approvals below the levels specified in Standing Orders*
3. Secretariat and Engagement - *standardised and streamlined meetings and clear communication of our investment governance process*
4. Identifying and Managing our Investment Decision Data - *review of the information we require, how we obtain it and how we use it to make decisions*

We are currently entering a high-level design phase whereby we will explore the problems in greater detail, identify appropriate solutions and optimising implementation plans to inform the milestones for delivery going forward.

5.5 Procurement and Commercial

5.5.1 Overview

The Procurement and Commercial workstream captures all the benefits achieved by procurement and commercial activity. These include items like "cost avoided" which do not count as efficiencies. However, there is potential for efficiencies delivered by this workstream to be claimed by BAU teams. Therefore, to avoid double counting, values stated against this workstream may understate its contribution.

Commercial activity spans the full project lifecycle from initiation to project close. We aim to maximise the value we get out of our supply chain partners and have the right market, procurement, contracting, and relationship strategies to drive business outcomes and create the right commercial environment for efficient delivery.

The initiatives in this workstream will review all elements of our commercial lifecycle approach and how they interact with other CEP workstreams to ensure we are delivering the best value for money.

How will this make us more efficient? The vast majority of our capital expenditure is delivered through the supply chain, via frameworks and therefore the workstream is recognised as a key impact opportunity area for increasing our direct efficiencies.

5.5.2 In year progress

This year has seen significant changes for the Procurement and Commercial (P&C) team. Under Chief Capital Office leadership, the development and improvement of several Capital focussed P&C workstreams were approved to commence activity. P&C has now transferred to Chief Finance Office leadership, but importantly the deliverables within the P&C Capital Improvement plan, remain the same.

An external support partner was determined to be the best way to provide this support, however, following an unsuccessful tender exercise (failure to deliver value for money) the work is now being self-delivered, primarily by TfL leads, with limited support from the supply chain. This work started in February 2023; a progress update will be provided in the 2024 annual report.

Resourcing Benchmark Review (in progress)

The P&C Capital function's resource levels fluctuate due to the temporary nature of projects, this initiative looks to review and ascertain optimal resource levels (and therefore direct project costs) during the life cycle of projects, incorporating learnings and recommendations from previous benchmarking exercises. We aim to establish benchmark models from recently completed / current projects in the Capital portfolio and undertake a study into the size of equivalent P&C functions in comparable organisations, working in a regulated environment. This review will be foundation to developing a model that determines the optimal P&C resources to apply to future pipeline activity.

Pipeline and Supply Chain Engagement (in progress))

TfL has experienced high volatility in its investment programme and procurement pipeline over recent years which has impacted our ability to plan strategic procurement and also market appetite and confidence. This initiative focuses on a rebuild of our long term pipeline, aligned to the Business Plan, Long Term Plan and Capital Strategy, grow market appetite and informing our portfolio procurement strategy. We will identify current best practice in infrastructure market engagement and set a structured approach to managing key market segments, using our pipeline to secure early contractor input to delivery models and testing appetite for our procurement and contracting strategies.

All Staff Commercial Training (in progress))

Capital delivery utilise multiple options of the NEC form of contract, utilising a wide number of functional groups required to successfully deliver our projects. It has been observed that there are varying degrees of contract knowledge and expertise within the teams and there is an opportunity for improvement in upskilling / refreshing all layers of the team for general commercial awareness, helping to avoid, mitigate and manage costly disputes and better manage the cost of change. Therefore, the focus of this initiative is to (1) undertake a review of the existing P&C Capital training material for NEC Contracts (2) update consistent set of training materials for NEC and (3) roll out all staff commercial training in NEC from May 2023. This would cover beginner, intermediate and advanced levels.

5.5.3 Look Ahead

Building a consistent approach to Cost Management (autumn 2023)

The purpose of this initiative is to map existing cost management delivery across P&C Capital, including review of resource capability and identifying best practice. The desired outcome is to understand requirements for standardised processes and products for Cost Management across

P&C Capital, and establish the interfaces with other functions (PMO, Cost Intelligence, Finance), aiming to reduce our current over reliance on NPL and Consultant resource needs.

‘Estimating Improvements’ exploratory review (spring 2024)

This initiative focuses on developing a comprehensive *estimating work-bank* linked to P&C pipeline, to support early engagement and better alignment of resources to projects. Estimating the forward workload is unclear and the boundary of estimating work needs exploration and review. The findings and recommendations will be foundational to designing new processes and procedures around estimating, progressing us towards building improved and efficient ways of working in this space.

5.6 Engineering and Asset Strategy

5.6.1 Overview

The key aim of this workstream is to help us reduce or identify potential reductions in the cost of projects through pragmatic application of requirements, such as through standards, collaboration with the supply chain and timely handover of assets into operational use. The TfL Engineering & Asset Strategy team (E&AS) has a crucial role in creating pan TfL coherence and alignment and unblocking wider business benefits and savings. Key outputs will also filter into understanding and outlining the future size and shape of the E&AS organisation and using asset digitisation to drive pan TfL plans and savings.

How will this make us more efficient? This work will help us reduce the cost of projects through pragmatic application of requirements and standards, collaboration with the supply chain and timely handover over of assets into operational use. Digital engineering will give us better data and insight to make the right decisions faster. This can particularly impact costs through challenging requirements and value engineering; and increased digitalisation will enable further efficiencies in future years.

5.6.2 Year in Progress

Blueprint developed for Digitising Asset Management (achieved)

This workstream passed stage Gate 0 in January 23 and has undertaken extensive market engagement with consultants, system providers and peer organisations, including Network Rail and National Highways. The next stage is procurement of a Strategic Business Partner (SBP) for Digital Asset Management to support the shaping and organising the digital programme, set the strategic direction, support the change process and embed in the business. The intention is to go to market in winter 2023 and have the SBP in place by summer 2024. This will enable us to quantify the benefits of Digital Asset Management, those benefits are expected to be an increase (or maintain) in performance of current assets, savings generated through predictive maintenance, as well as having an accurate understanding of current assets before capital business and investment decisions are made.

Trial of National Highways’ CARS system (in progress)

Trial of National Highways’ CARS system has demonstrated feasibility of application for TfL. A business case has been assessed based on National Highways’ approach but is not currently yielding a fast enough payback time to win TfL support in preference to other initiatives. An alternative ‘vertical slice’ implementation approach of digitising standards and technical specifications for one asset area at a time is now being explored, and it is planned to undertake a ‘proof of concept’ trial of this approach. Outcomes will be shared in the next annual report.

TfL Standards Improvement Programme (in progress)

An agreed approach to development of common standards across UK transport clients has been developed by the Transport Industry Efficiency Strategy (TIES) Standards Steering Group (chaired by TfL) and was positively received by an audience of senior transport industry figures at the TIES Living Lab Exploitation event on 13th July; a supporting Information Paper has been published on the TIES Living Lab website. A series of workshops have been held to develop the principles of the supporting governance arrangements, and £30k of TIES Living Lab funding has been secured for the Railway Safety Standards Board to translate the output of these workshops into a suite of governance processes for consultation.

A four-weekly Capital Standards Surgery has been established in order to encourage engineers, internal engineering customers and suppliers to raise 'pain points' related to standards. This is proving fruitful in identifying a pipeline of initiatives for consideration.

5.6.3 Lookahead

Knowledge Sharing - Reference Designs (summer 2023)

Reference Designs are designs which are reusable either in their 'vanilla' form or with relatively minor adaptation. Such approaches have been commonly used within individual teams/programmes; however we are establishing a systematic approach for the management of Reference Designs at a pan-TfL level such that the designs developed by one programme can be captured and preserved for the benefit of future projects. An information structure and user interface has been developed so that related elements e.g. drawings, calculations, specifications are linked and are easily searchable. The approach has been proven for the new retail kiosk design which has been installed at Shoreditch, leading to a significant reduction in the tenant onboarding process.

Repeated use of design elements implicitly reduces the design timescale and creates economies of scale in manufacturing/implementation; the inherent standardisation facilitates continuous improvement, improved sustainability and greater use of modular/off-site construction. We are planning a knowledge-sharing session for June 2023 with the hope of agreeing a common approach to management of Reference Designs with other TIES partners.

Programme Design Management Group (Piccadilly Line Upgrade works 23/24)

The Programme Design Management Group (PDMG) is intended to be the programme level equivalent of the CDM Principal Designer role and is applicable to programmes and major projects with more than one Principal Designer or where there are significant elements of the design not covered by a Principal Designer (e.g. vehicles, software) that need to be co-ordinated with other elements, in order to design out risk for the programme/project as a whole. The PDMG comprises the key decision-makers on the programme and has the remit to design out risk for complex programmes/major projects, while at the same time respecting the design accountabilities which have been contractually assigned (including but not limited to Principal Designers). Without overarching design management it is likely that sub-optimal decisions will be made, integration gaps will arise and optimisation opportunities to maximise value will be missed. It is hoped that the PDMG approach will enable the pro-active resolution of systems integration issues.

The approach has been successfully trialled on the Docklands Light Railway Rolling Stock Replacement Programme and will be extended to Piccadilly Line Upgrade during 23/24.

Procurement of Product Information Register (autumn 2023)

A new Product Information Register tool will be procured for LU; collaboration with Network Rail is ongoing with a view to adapting their product acceptance application for TfL's needs. The new tool will support future integration with other digital systems. In conjunction with the rewritten Category 1 LUL Standard S1011 titled 'Product Acceptance and Registration', the new Product

Information Register tool will improve business efficiency and reduce safety risk by ensuring that all product information within the register is of clear provenance, with the specific application for which a product is authorised and any conditions being clearly defined. Clear distinction will be drawn between those products which are required to be 'authorised for use' versus those which are only being assessed for fire compliance. The tool will also address cybersecurity, General Data Protection Regulation and obsolescence issues with the existing tool.

Continuous Improvement Engineering Standards (autumn 2023)

A 'proof of concept' trial of Component Content Management System is planned in the rolling stock engineering area. Continued collaboration with Network Rail and National Highways via the TIES Standards Steering Group will take place in order to share knowledge and adopt common approaches where appropriate. It is anticipated that this trial will generate the data to underpin the business case for further investment.

Further to this, in support of standards digitisation, a market sounding questionnaire has been issued to suppliers of component content management systems; responses from nine potential suppliers are being evaluated and may inform new efficiency ideas and initiatives to explore and pilot in the future.

Project Engineering Productivity

Project Engineering capability is a key driver of productivity in projects. Trained and accredited project engineers will reduce demand. Target to reduce demand by **increasing productivity by 20 per cent over three years**. This task will carry on the current capability improvement tasks:

- Establish training strategy and implement it
- Re-establish accreditation scheme
- Establish Mentoring/Coaching network
- Maintain and improve Engineering Handbook

Note, this excludes secondary positive effects to the projects of increased productivity resulting in reduced delays and improved right first time.

5.7 Access

5.7.1 Overview

The workstream was separated into Roads and Rail elements, as access for each is controlled differently with bespoke nuances to manage effectively and appropriately. It is expected to deliver cashable efficiencies directly through reducing costs of delivering project outcomes.

The Roads Access workstream have completed their work via a software tool which is enabling multiple works to be combined saving "lane access charges" and other costs, which are now capable of being separately identified and reported. Efficiencies have started to flow from the start of 2022/23. The value of direct efficiencies achievable depends both on the level of project spend on roads projects and the extent to which it is possible to combine works.

The Rail Access workstream has focussed on two areas; maximising the volume of work completed during engineering hours (typically at night) and reviewing the use of planned railway closures to allow work to be delivered more efficiently and effectively during these longer access opportunities. We intend to deliver improvements in how we book, schedule, and manage access to our network for all capital and maintenance activity. We can leverage efficiencies by exploring the use of longer closures that combine multi-discipline works, as well as making better use of our limited engineering hours through improved intervention planning and control.

How will this make us more efficient? Access to the road and track network is one of the most important commodities on a transport project, but we may not use this resource in the most productive way possible, therefore adding cost to delivery.

5.7.2 Rail Initiatives - in year progress

Access and Planning Operating Model Review (in progress)

We continued to conduct an in-depth review of our approach to access and closure planning and undertook detailed operating model design based on this review; this work delivered conclusions and a proposed roadmap in September 2022.

Our findings included that Rail systems, particularly those within London Underground, are inspected, maintained, renewed and enhanced by a large number of separate departments and contractors. The work to be done is determined by our engineering standards, prescribed maintenance regimes and our investment objectives. Many of these activities demand access and space to work on and around our railway infrastructure which is largely successfully managed on a transactional basis by our access management and coordination practitioners.

Requirements gathering and the design of improved capability with our access practitioners yielded a number of proposed solutions to improve the efficiency of delivery where railway access or closure is required:

- Rationalisation and development of planning processes across the organisation
- Introduction of a medium to long term access coordination capability with a remit across all TfL rail infrastructure.
- Encouraging and mandating integration of access requirements earlier in the intervention generation and planning processes in use.

Rationalisation and development of our planning processes is an important first step to enable savings from the rail access workstream.

Network Rail Planning and Access Knowledge Share 2022 (achieved)

During the requirements gathering phase of the project, we met counterparts from Network Rail to understand how they plan for Access on the national network.

Network Rail's approach to planning of Access differs from TfL's. The time horizons they work to are much longer than our own. They are often planning two to three years in advance of the delivery of the work on the network. This allows for sufficient time to plan, deconflict bookings and to optimise plans.

Our counterparts saw the early and detailed engagement with their project and maintenance colleagues as key to the success of their process. They can demonstrate the success of their current processes and approaches, over the last five years, they have saved around 1,000 days of disruptive access due to being able to deliver more work in engineering hours.

The outcome of the meeting was to confirm to the TfL project team that we are proceeding in the right direction with this project and the recommendations resulting from it.

Having established the requirements for a future operating approach we concluded that significant changes are required to the way we initiate, plan and deliver work in TfL for any new ways of working or capability to successfully deliver efficiency and reduce capital cost as we aim.

5.7.3 Look Ahead

Capability Model and Business Case Review (summer 2023)

In April 2023 TfL onboarded a framework delivery partner to conduct a series of review sprints, exploring all layers of our planning and access operating model across all modes of the organisation. The purpose of Sprint 1 is to establish current planning models and processes each function uses for planning their interventions, Sprint 2 is to provide feasibility and analysis of our 'current state' challenges, leading to Sprint 3, a business case proposal for high level design. This 16 week project is due to complete in summer 2023 and will inform a long-term programme of improvement and efficiency changes.

5.7.4 Road initiatives - in year progress

Enhancement of the Playbook Tool (in progress)

Enhancement opportunities have been explored for more effective use of the Playbook tool, with the focus being around project delivery coordination and planning. Additional headcount has been approved and we are currently recruiting for a resource to assist on the creation of additional map layers containing projects from other programmes. We aim to replicate the approach take for Healthy Streets projects with third party signal and bus infrastructure interventions, as this simple improvement of the accuracy of the data (for existing map layers) allowed the achievement of numerous milestones for Asset Delivery Programmes, effectively coordinating multiple projects within some road network corridors, enabling more efficient planning and delivery.

5.7.5 Look Ahead

Bus Data Pilot (summer 2023)

Capital schemes have the potential to incur bus mitigation and lane rental costs due to the impact on the road network, but these are usually identified late in the programming. The bus mitigation costs can often be inflated by other, nearby conflicting schemes, whilst also incurring operational costs to the business (long term revenue loss etc). This pilot develops a bus network map which can be utilised at scheme conception to avoid undue capital and operational bus costs. It will also provide an early indicator of potential lane rental costs, so high-risk schemes could be flagged for delivery through an existing pathway option to Capital/ Network Management and Resilience (NMR) to improve overall coordination, whilst reducing cost. Any savings could be delivered through other bus positive schemes.

The draft map is currently being finalised based on NMR and Bus Operations data. Once ready it will be circulated for a sense check with relevant internal and external stakeholders.

6. "Savings to be found" targets in TfL's latest Budget

TfL's 2023/24 Budget includes efficiencies relating to the CEP programme in a range of £32m to £51m.

As a result of the uncertain funding and consequential limited of delivery from those CEP workstreams with long lead times such as the Rail Access workstream, TfL has adjusted its CEP target for 2023/24 to reflect a delay in step up of long lead time efficiencies by a year.

As TfL does not have complete funding certainty beyond 2023/24 and no targets are confirmed beyond this year.

Impact of inflation: In 2023/24 TfL effectively has its capital spending constrained by the Funding Agreement. Inflationary increases can therefore mean delivery of fewer project for the same

spend, with a potential consequential impact on delivery of efficiencies. In addition where inflation is higher than Budget assumptions, this makes it harder to deliver cashable procurement related efficiencies as market price rises can offset management actions.

7. Forward look

TfL has exceeded its targets in each of 2021/22 and 2022/23, but in both cases almost entirely through Business as usual efficiencies. Many of the improvements envisaged by CEP, such as those made by combining closures, are dependent on longer term (5year+) funding certainty, due to the length of the planning horizon required.

While TfL has started 2023/24 with near funding certainty for this financial year, the 2022/23 Business Plan assumes continued Government support for Major Asset Replacements from 2024/25 onwards which has yet to be confirmed. For 2024/25 in particular, the consequences of not receiving expected funding could result in inefficiencies greater than efficiency targets, including deferrals of schemes expected to contribute to achievement of efficiencies. Late confirmation of funding decisions may accelerate or delay efficiencies from one year to another with insufficient time to identify alternatives.

Without long term funding certainty and the ability to plan works, it will be difficult for TfL to deliver much beyond the level of 'Business as Usual' efficiencies.

Programmes and Investment Committee



Date: 19 July 2023

Item: **Enterprise Risk Update – Delivery of Key Projects and Programmes (ER8)**

This paper will be considered in public

1 Summary

- 1.1 As part of TfL's risk management process, the Committee oversees the "Delivery of TfL key investment programmes" (ER8).
- 1.2 This paper provides an update on how TfL manages the risk across capital delivery.
- 1.3 A paper is included on Part 2 of the 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 exempt supplementary information on Part 2 of the agenda.**

3 Background

- 3.1 A comprehensive review of ER8 last year introduced new controls and mitigations resulting from the January 2021 Financial Sustainability Plan, 2023 Business Plan and subsequent movement away from the November 2021 managed decline scenario for budgeting, which restricted expenditure to committed enhancements and only the most essential renewal projects.
- 3.2 While funding arrangements have been agreed with government up to the end of 2023/24 there remains the challenges to secure capital funding for the delivery of TfL projects and programmes beyond this term. This compromises effective internal decision-making, the ability to prioritise programmes and projects with certainty and make longer term commitments.
- 3.3 Geopolitical issues and subsequent market volatility continue to make impacts of high inflation challenging and compound global supply chain concerns. Both Finance and the Procurement and Commercial departments continue to identify, track and manage these risks proactively.

4 Overall Control Effectiveness Rating

- 4.1 Although robust controls remain in force and a number of the embedded mitigations have been effective, a conservative assessment has been made when assessing the rating of this risk, recognising the factors outlined in section 3. This has led to the Enterprise Risk rating remaining at "requires improvement" while new controls and mitigations are tested for their effectiveness.
- 4.2 New and existing controls and mitigations will be tracked and assessed by senior management for their effectiveness on a quarterly basis.
- 4.3 There will be considerable pressure in the coming years for TfL to demonstrate our ability to "deliver more for less". To succeed, it will be fundamental to continuously act as an intelligent client while we review and, as required, revise our control measures, thereby implementing consistent, coherent and competitive processes to refocus our capital business.

5 Risk Assessment rationale

- 5.1 The current probability assessment of the collective risk remains as "medium", reflecting the effectiveness of critical preventative controls. However, the financial impact remains "very high" due to spending commitments on projects and programmes in TfL. More detailed information is reflected by key performance indicators in all the business scorecards.

6 Consequences, Controls and Actions

- 6.1 The current funding constraints have compromised TfL's capital delivery: major programmes and projects and if a longer-term funding settlement is not secured there is a risk of significant de-scoping or prolongation.
- 6.2 While improvements have been seen through control measures, the TfL investment portfolio remains vulnerable to various internal and external factors. Most notably, uncertain market conditions creating further funding challenges, impacting TfL's financial position.
- 6.3 The uncertain long-term financial situation has placed additional pressure on capital projects in terms of:
 - (a) our ability to conduct financial forecasts with lasting accuracy against unfunded projects;
 - (b) our ability to plan effectively for the longer term which causes increased overheads, and inability to lock-in long term savings; and
 - (c) attracting and retaining competent resources within an overheated market.
- 6.4 Newly embedded controls and mitigations for ER8 include:
 - (a) establishment of the Capital Strategy Delivery Group, which meets periodically to provide the Directors accountable across the project lifecycle the necessary direction and oversight on strategic priorities across the capital investment landscape;

- (b) Consultancy Delivery Partner contract let via the Project and Programme Management Framework through which we can procure Project Management, Construction Management and Project Management Office (PMO) services and resource. This enables; fast access to consultancy resource, secures the best rates available for services and resources, saves time by eliminating the need for multiple mini-competitions and receiving value-add from our delivery partners;
- (c) streamlined governance processes through the removal of the temporary Financial Commitment Oversight Group. Investment Group thresholds have been increased to empower Directors and delegated local leads to take project decisions below the new thresholds. In addition, transparency will be increased across the value chain through representatives from Delivery, Operations, Customer and Strategy and Finance functions being sighted on key project decisions being made by Directors at local review groups;
- (d) a review of the programme structure within the remit of the Committee has been completed. Changes proposed from this review seek to simplify and reduce the number of programmes under the Committee and better reflect TfL's new operating model. Going forward these changes are expected to deliver more efficient governance, enhance investment prioritisation, and support improved assessment of initiatives against strategic outcomes; and
- (e) the establishment of a Project Management Community has commenced. This aims to bring together project management activity from Operations and Capital to enable agile resourcing, upskilling through additional accreditation, greater application of lessons learnt across all of our programmes and enhanced collaboration via a project management network.

6.5 Key existing controls for ER8 include:

- (a) the PMO, which is an independent support function working collaboratively with the delivery teams to implement consistent, transparent and efficient controls processes across TfL's projects and programmes. The PMO also provides first line assurance;
- (b) a Central Projects List (CPL) tracks budgets against the approved TfL Investment Programme baseline. The CPL is the central point of truth for business-level reporting;
- (c) as part of the Our TfL Programme (OTP), Pathway has been identified as a key element to embed the resulting changes to ensure new ways of working are captured and available for use by delivery teams. We are continually revalidating Pathway Product templates to ensure that regulatory, business and best practice requirements are kept up to date, which also ensures that delivery teams don't waste effort on producing documents and information that are longer required or miss providing content for current requirements;
- (d) continuation of second and third line assurance activities at project and programme level. The Independent Investment Programme Advisory Group is currently reviewing the Pathway Gate process and are expecting to

provide their findings early autumn. The Pathway Gates process seeks to ensure that projects are fit for purpose to move through the lifecycle; and

- (e) project, programme and portfolio reviews to monitor progress and escalate critical risks and issues.

6.6 Cost saving mitigations include:

- (a) OTP being a dual-purpose pan-TfL change programme. It is being lead through four programmes and is responsible for enabling the delivery of an operating model which is integrated, innovative, technology-led, value driven and supports the achievement of recurring savings which can contribute to TfL's Financial Sustainability Plan;
- (b) reviewing short, medium and long-term organisational capital improvement activities. Establishing targets and tracking the efficiency of all capital delivery projects and programmes including initiatives to help us deliver outcomes for less money;
- (c) development of the PMO automated reporting tool. This seeks to provide decision makers across the business with diagnostic controls information for every project within the CPL. This will be built on high quality business data from source, presented in a way that will allow decision makers to assess the health of projects against schedule, cost, risk and quality by providing a holistic view. The tool will start to pivot away from retrospective reporting to providing forward looking insights that will help keep our delivery objectives on track by facilitating timely management interventions. This will assist with preventing risks from becoming issues, understanding delivery performance trajectories and reviewing fully transparent financial and commercial information to contribute towards managing our costs;
- (d) a Risk Improvement Programme will enhance TfL's approach to risk and opportunity management across the investment programme. More than 45 initiatives are planned which will promote enhanced risk supported decision making, increase the maturity of time and cost risk assessments and provide stronger assurance and transparency of risks across the project lifecycle; and
- (e) Procurement and Commercial function controls being investigated and prepared include; improving and standardising our approach to capital procurement, redefining and optimising the way we estimate costs and utilise TfL's data and improving and standardising our approach to managing our suppliers and contracts.

List of appendices to this report:

A paper containing exempt supplementary information is included on Part 2 of the agenda.

List of Background Papers

None.

Contact Officer: Stuart Harvey, Chief Capital Officer
Email: StuartHarvey@tfl.gov.uk

[page left intentionally blank]

Programmes and Investment Committee



Date: 19 July 2023

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 for the forward plan. Members are also invited to suggest items for future informal briefings.

2 Recommendation

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

3 Forward Plan Development

- 3.1 The Board and its Committees and Panels have forward plans. The content of the plan arises from a number of sources:
- (a) Standing items for each meeting: Minutes; Matters Arising and Actions List; and any regular quarterly or periodic reports. For this Committee, this is the quarterly Investment Programme Report.
 - (b) Programmes and Projects at a level requiring Committee approval. These include the annual review of the sub-programmes in the Investment Programme and other approvals sought following advice from the operating businesses.
 - (c) Items requested by Members: The Deputy Chair of TfL and the Chair of this 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 plan is attached as 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: Programmes and Investment Committee Forward Plan 2022/23

List of Background Papers:

None

Contact Officer: Howard Carter, General Counsel
Email: HowardCarter@tfl.gov.uk

Programmes and Investment Committee Forward Plan 2023/24

Membership: Ben Story (Chair), Dr Nelson Ogunshakin OBE (Vice Chair), Seb Dance, Dr Lynn Sloman MBE, Peter Strachan and Cllr Kieron Williams

Government Special Representative: TBC

Abbreviations: CCO (Chief Capital Officer), CCSO (Chief Customer and Strategy Officer), CFO (Chief Finance Officer), COO (Chief Operating Officer), D IDP (Director Investment Delivery Planning), D SCTO (Director Strategy and Chief Technology Officer)

Standing Items		
Use of Delegated Authority	General Counsel	Standing item
Quarterly Investment Programme Report	CCO and D IDP	Standing item
Independent Investment Programme Advisory Group Quarterly Report	General Counsel	Standing item
TfL Project Assurance	General Counsel	Standing item
Regular programme annual reviews		

5 October 2023		
Lambeth Bridge	CCO and D IDP	Project and Programme Authority
Silvertown Tunnel Annual Review	CCO	Annual review
Piccadilly line Upgrade	CCO	Update
London Underground and Elizabeth line Renewals and Train Systems	D IDP	Update and Project and Programme Authority
Lift and Escalator contracts	D IDP	Project and Programme Authority

6 December 2023		
Bakerloo line Upgrade Programme	D IDP	Update
Embedding Lessons Learnt from Recently Completed Projects	CCO	Update (Committee Action)

28 February 2024		
Environment Programme – Air Quality and Environment	D IDP	Annual Update and Approval
Technology Programme – Technology and Data	CCSO and D SCTO	Annual Update and Approval

Regular Items:

- Streets, Bus and Rail and Sponsored Services Renewals Programme (IDP)
- Safe and Healthy Streets Programme (IDP)
- Four Lines Modernisation (4LM) Annual Update (CCO) (July)
- Enterprise Risk Update - Delivery of Key Projects and Programmes (ER8) (July)
- Silvertown Tunnel Annual Review (CCO) (October)
- Environment Programme – Air Quality and Environment (D IDP) (February/March)
- Technology Programme – Technology and Data (CCSO and D SCTO) (February/March)

Items to be scheduled:

- London Overground future planning
- Rotherhithe Tunnel
- Fiveways Corner in Croydon

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A
of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A
of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A
of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A
of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A
of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]

By virtue of paragraph(s) 3 of Part 1 of Schedule 12A
of the Local Government Act 1972.

Document is Restricted

[page left intentionally blank]