

**Agenda
Programmes and Investment Committee
Thursday 3 October 2024**

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.

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

3 Minutes of the Meeting of the Committee held on 26 June 2024

General Counsel

The Committee is asked to approve the minutes of the meeting of the Committee held on 26 June 2024 and authorise the Chair to sign them.

4 Matters Arising and Actions List

General Counsel

The Committee is asked to note the updated actions list.

5 Use of Delegated Authority

General Counsel

The Committee is asked to note the paper.

6 Investment Programme Report Quarter 1, 2024/25

Chief Capital Officer and Director of Investment Planning

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

7 Independent Investment Programme Advisory Group Quarterly Report

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

General Counsel

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

9 Silvertown Tunnel

Chief Capital Officer and Director of Investment Planning

The Committee is asked to note the paper and the exempt supplementary paper on Part 2 of the agenda and approve the transfer of £3.48m Financial Authority and Programme and Project Authority from the Silvertown Tunnel Programme to the Environment Programme and approve for the Silvertown Tunnel Programme additional unbudgeted Financial Authority of £7.2m and additional Programme and Project Authority of £10.1m, bringing the total Financial Authority and Programme and Project Authority to £187.7m.

10 Piccadilly Line Upgrade - Stage 1 Progress Update

Chief Capital Officer and Director of Investment Planning

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

11 London Underground Renewals

Chief Capital Officer and Director of Investment Planning

The Committee is asked to note the paper and approve additional Programme and Project Authority of £171m for the Programme, bringing the total Programme and Project Authority to £3,892m.

12 Bank Station Capacity Upgrade

Chief Capital Officer and Director of Investment Planning

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 and additional Programme and Project Authority.

13 Capital Efficiencies Report 2023/24

Chief Capital Officer and Director of Programme Management Office

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

14 TfL Lessons Learnt from Key External Reports

Chief Capital Officer and Director of Programme Management Office

The Committee is asked to note the paper.

15 Lessons Learnt from Major Programmes and Projects

Chief Capital Officer and Director of Programme Management Office

The Committee is asked to note the paper.

16 Forthcoming Key Procurement Activities

Chief Finance Officer

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

17 Members' Suggestions for Future Discussion Items

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.

18 Any Other Business the Chair Considers Urgent

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

19 Date of Next Meeting

Wednesday 11 December 2024 at 10:00am.

20 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

21 Investment Programme Report Quarter 1, 2024/25

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

22 Independent Investment Programme Advisory Group Quarterly Report

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

23 TfL Project Assurance Update

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

24 Silvertown Tunnel

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

25 Piccadilly Line Upgrade - Stage 1 Progress Update

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

26 Bank Station Capacity Upgrade

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

27 Capital Efficiencies Report 2023/24

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

28 Forthcoming Key Procurement Activities

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

Transport for London

Minutes of the Meeting of the Programmes and Investment Committee

Conference Rooms 1 and 2, Ground Floor, Palestra,
197 Blackfriars Road, London, SE1 8NJ
10:00am, Wednesday 26 June 2024

Members

Seb Dance
Mark Phillips (in the Chair)

Government Observer

David Coles (via Teams)

Executive Committee

Andy Lord	Commissioner
Andrea Clarke	General Counsel
Stuart Harvey	Chief Capital Officer

Staff

Isabel Coman	Director TfL Engineering Asset Strategy
Justine Curry	Interim Director of Legal
Nick Fairholme	Director of Capital Delivery, Systems, Project and Programme Delivery
Christian Fowler	Head of Investment Delivery Planning - Public Transport
Mark Harvey	Head of Commercial – Systems
Scott Haxton	Director of Capital Delivery, Infrastructure
Peter McNaught	Director of Operational Readiness
Vicky Morley	Senior Advisor, Chief Capital Officer
Zoe Manzoor	Senior Committee Officer
Kumaran Nagiah	Chief of Staff, Chief Capital Officer
Robert Niven	Head of Investment Delivery Planning Major Projects
James Norris	Head of Project Assurance
David Rowe	Interim Director of Investment Delivery Planning
Rachel Sherry	Finance Director – Capital
Garry Sterritt	Head of Asset Strategy

Independent Investment Programme Advisory Group (IIPAG)

Alison Munro	Chair IIPAG
Simon Collins	IIPAG Member

18/06/24 Apologies for Absence and Chair's Announcements

Due to unexpected events, the meeting was not quorate. Although the meeting was being held during the pre-election period and was inquorate, it had been agreed that the discussions on the agenda items should go ahead in public, so that Members continued to be informed and accountable for TfL's activities with appropriate transparency. Mark Phillips would chair the discussion of items and, subject to the views of Members, he would exercise Chair's Actions to approve the two items that required a decision.

Apologies for absence had been received from Dr Nelson Ogunshakin OBE (Chair), Peter Strachan (Vice Chair) and Dr Lynn Sloman MBE.

David Coles was attending via Teams.

The Chair welcomed everyone to the meeting. The meeting was being broadcast live to TfL's YouTube channel, except for the discussion of the information on Part 2 of the agenda which was exempt from publication, to ensure the public and the press could observe the proceedings.

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.

19/06/24 Declarations of Interests

Since the last meeting of the Committee, Dr Nelson Ogunshakin OBE had stood down from his role as Chief Executive Officer, International Federation of Consulting Engineers (FIDIC) and related appointments in the FIDIC group. His biography on TfL's website had been updated to confirm that he was also no longer an Independent Director of Depthwise Limited nor Vice-Chair of the Advisory Board, Association for Consultancy & Engineering.

Members confirmed that their declarations of interests, as published on tfl.gov.uk, were up to date and there were no interests to declare that related specifically to items on the agenda.

20/06/24 Minutes of the Meeting of the Committee held on 28 February 2024

The minutes of the meeting of the Committee held on 28 February 2024 were approved as a correct record and the Chair was authorised to sign them.

21/06/24 Matters Arising and Actions List

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

Members noted the updated Actions List.

22/06/24 Use of Delegated Authority

Andrea Clarke introduced the item. Since the last meeting of the Committee on 28 February 2024, there had been one use of a Chair's Action in relation to approving authorities relating to the Elizabeth line: Service Frequency Increase to Support High Speed 2. There had also been two approvals of Procurement Authority in relation to Purchasing S Stock and 09TS Compressors; and a Depots Delivery Integrator

variation to extend the contract for a further two years. There had been no other use of delegated authority by the Commissioner or the Chief Finance Officer nor any Mayoral Directions to TfL within the Committee's remit.

Members noted the paper.

23/06/24 Investment Programme Report Quarter 4: Periods 10, 11, 12 and 13, 2023/24

Stuart Harvey and David Rowe introduced the Investment Programme Report for Quarter 4 of 2023/24 (10 December 2023 to 31 March 2024) of TfL's Investment Programme.

Stuart Harvey provided an overview of the key achievements in delivering the major projects. In relation to safety performance, the trends remained stable and the Capital team had continued to perform well. There had been a reduction in injuries compared to the previous year and there had been no RIDDORs (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations) occurrences in the quarter. The team would continue to focus on safety and on making further improvements, including the lessons learnt from the annual Zero Harm safety conference.

TfL had delivered 23 of the 28 milestones on time or earlier. Five of the strategic milestones had been missed due to delays. TfL would continue to work to achieve the targets and learn lessons from the missed milestones.

Manufacturing of the new DLR trains continued to progress well and 30 trains had now been completed. Testing of new trains had re-commenced. An update was provided with progress with this work. The work remained on track to meet the target date for renewal of the full fleet involving delivery of 54 trains by summer 2026. Progress had continued to be made with installing the sidings, completing the depot work and managing the costs pressures.

The first Piccadilly line train remained on track for delivery in London later in summer 2024. Testing and the works to prepare the infrastructure for the new trains was progressing well. Work was underway to identify cost savings and would be reported on in the annual update to the Committee in September 2024. In response to questions, assurances were provided about the ongoing activities to mitigate risks and address issues regarding the interface between platforms and trains.

Silvertown Tunnel construction work continued. The recent construction of the tunnel domes and installation of key cabling work marked a key turning point in the project. Preparations were underway to carry out the next phase of the construction and there were plans in place to bring it back to the Budget authority.

At Bank station, the capacity upgrade had been substantially completed. A paper would be brought to the Committee seeking additional authority for the project, as set out in the Forward Plan.

TfL had continued to make good progress with the Elephant & Castle tunnelling works for the station enhancements, and TfL was now ready to award the contract for works. At Surrey Quays, the works to upgrade the station was progressing well, including the

upgrading of the Canada Water bus station. TfL continued to work closely with key partners including Network Rail on this work.

TfL was in the process of replacing its tram rolling stock and would issue an invitation to tender to the market.

A full update on the London Underground Four Line Modernisation (4LM) Programme was provided elsewhere on the agenda (see Minute 26/06/24). Members discussed the incident highlighted in the report, where an in-service train over-ran the platform at Shepherd's Bush Market by approximately 30 metres. It was confirmed that the train's hardware had been thoroughly analysed by the relevant experts and no issues were found. The software providers were also reviewing operational working in light of the incident to ensure nothing similar would occur again. Nothing similar had happened on the network. The Commissioner also provided assurances regarding the close working between the FLM team and the software provider to review progress at a senior level. The train would only be put back in service once all parties were confident it was safe for passenger service. In terms of the remaining costs available for the Programme, the team were investigating ways to maximise efficiencies, where possible, to minimise costs.

An update was also provided on the step-free access programme. Construction of the step-free access at Northolt station was due to commence in early 2025. The team had identified a single preferred solution for the provision of step-free access at eight previously announced stations at priority strategy locations and were looking to update plans to optimise this work.

Following the approval of funding by the Department for Transport (DfT), good progress continued to be made at Colindale and Leyton stations, to provide additional capacity and step-free access. The main works at Colindale were now underway. During the temporary closure, from 7 June 2024 to December 2024, TfL was advertising to notify travel information and providing temporary bus services. There would also be further track closures along the track at Edgware and Golders Green. At Leyton, the construction contract was due to be awarded in Quarter 2 of 2024/25.

David Rowe also provided an overview of the key achievements. The key highlights noted included: the continued expansion of London's cycleway network; the lower speed network and the delivery of 10km of priority bus lanes, in line with the targets; and safer junctions initiatives.

In response to a question from a Member about Cycleway 4 (London Bridge to Greenwich), it was confirmed that TfL had made changes to improve the visibility of the cycleway such as additional signage and was still monitoring the impacts of the changes and would continue to look at improvements where necessary.

On bus safety, TfL had now installed new safety equipment on 40 per cent of buses, including speed assistance equipment and was also trialling the use of fatigue detection technology equipment on buses. Funding had also been received to decarbonise buildings, and work continued with this.

There had been some progress in relation to the provision of level boarding for Elizabeth line rolling stock at Old Oak Common. An options report was expected in September 2024, and this would inform how TfL proceeded. On 14 June 2024, the

DfT had confirmed funding to TfL for the procurement of 10 new Elizabeth line trains to expand the capacity of services and accommodate demand from Old Oak Common when it become a temporary terminus, following the recent changes to High Speed 2.

Following changes to the Direct Vision Standard star rating, there had been a significant decrease in road deaths. It was expected that the proposed increase in star rating from one to three-star should lead to even more positive results. A database had been established to allow operators to register to acquire the new rating and was on course to go live in June 2024.

Other key achievements highlighted on the technology programme included the deployment of new enforcement cameras, and the instalment of real time optimising system to traffic lights to assist bus priority. A Member noted the merits of exploring the use of artificial intelligence to help with optimising this work.

TfL had introduced new fares concessions for care leavers. Work had also continued to develop payment features on the TfL Go app.

An update was also provided on London Underground renewals. In the final quarter of 2023/24, a total of 3,000 metres of rail had been replaced. The Metropolitan line overall work was progressing well. Work also continued on delivering the lifts and escalator programme. Although progress at Holloway Road with lift replacement works had been delayed, due to the need to ensure equipment was working reliably. The engineering team had carried out works to increase reliability of the Central line in the east. On the Bakerloo line, TfL had now completed 60 per cent of LED overalls and 100 percent of LED retrofits. Works were also underway to overhaul the engineering vehicles and to improve staff welfare facilities.

Members noted the report and the exempt supplementary information on Part 2 of the agenda.

24/06/24 Independent Investment Programme Advisory Group Quarterly Report

James Norris introduced the Independent Investment Programme Advisory Group's (IIPAG's) quarterly report which set out work undertaken by IIPAG since the report to the Committee in February 2024.

Alison Munro presented the Appendix summarising IIPAG activities.

IIPAG had conducted three programme level reviews in the period covering: the London Underground Four Lines Modernisation; Street, Bus and Rail and Sponsored Services (RSS) Renewals; and Rail and Station Enhancements.

IIPAG had identify one systemic issue relating to the Street, Bus and RSS Renewals Programme. IIPAG made a number of observations regarding the ongoing concerns about asset condition, which reflected funding shortages and the growing impacts of these. Management had provided a response to the findings and were working to address these.

The report also provided an overview of IIPAG's work programme for 2024/25.

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

25/06/24 TfL Project Assurance Update

James Norris introduced the item, which provided an update on the project assurance work undertaken between 7 January and 25 May 2024.

The Project Assurance team had undertaken three programme reviews with the Independent Investment Programme Advisory Group (IIPAG) during the period, and 17 project assurance reviews, with IIPAG involved in four of them. These reviews raised a total of 79 recommendations and also identified three critical issues, as set out in the paper on Part 2 of the agenda.

The project teams had continued to have a positive closure rate for recommendations and the number of overdue recommendations remained at a low level. The paper also set out details of several thematic graphs, giving a general visual overview of where recommendations were targeted and areas for improvement.

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

26/06/24 London Underground Four Lines Modernisation Programme

Stuart Harvey presented the item on the delivery of the London Underground Four Lines Modernisation Programme.

The Programme comprised the replacement, modernisation and integration of life-expired assets (signalling, rolling stock, track, power and depots) on the sub-surface railway. It was a complex and challenging programme and remained under both scheduling and cost pressure. Despite the challenges, TfL had continued to make good progress with the work.

The next two Signal Migration Areas to go live were SMA 8 (Finchley Road to Preston Road) and SMA 9 (the Harrow area). Good progress had been made with commissioning SMA 8 and 9. The project team had continued to work collaboratively with partners and had gained a greater understanding of, and increased confidence relating to the system integration through complex testing. Given the complexity of the work, the date for completion of SMA 8 had been moved back from October 2024 to early 2025 and remained on track to be completed to this revised schedule. The operators training programme had also commenced.

Preparations were now underway to introduce a new timetable in early 2025 to enable an improvement in average journey times between Stepney Green and Upminster.

The costs of the project would be kept under review and the project team were working with the supplier to explore different models to minimise costs and timing uncertainties.

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

Under the authority in Standing Order 112, Mark Phillips exercised Chair's Action and:

- 1 approved additional Programme and Project Authority for the sum set out in the paper on Part 2 of the agenda;**
- 2 approved additional Procurement Authority for the Automatic Train Control signalling contract for the sum set out in the paper on Part 2 of the agenda;**
- 3 approved the transfer of Programme and Project Authority (granted by the Committee in July 2022) and Financial Authority for the signalling element of the works at Aldgate Junction to the London Underground Renewals Programme for the sum set out in the paper on Part 2 of the agenda; and**
- 4 noted that the matters for which Authority was sought above extend beyond the period of the 2024/25 Budget and 2024 Business Plan. Provision would, therefore, need to be made for them in future Business Plans and Budgets.**

27/06/24 Streets, Bus and Rail and Sponsored Services Renewals Programme

David Rowe presented the item setting out the achievements and progress of the Streets, Bus and Rail and Sponsored Services Renewals Programme. The assets covered by the paper included TfL highways, traffic, highway structures, bus infrastructure, river piers, DLR, London Overground, London Trams, Cable Car, Cycle Hire, Woolwich Ferry and London Buses.

The paper set out the strategic context and the process for identifying priorities. When considering priorities for renewals, TfL used a consistent prioritisation framework for all TfL capital renewals investment, with the aim of managing the State of Good Repair list. The paper also set out details of the investment in the backlog of renewals, the challenges faced in terms of the funding position, performance to date and future plans. Overall, despite the challenges, the Programme had performed well this year, with renewals better than forecast levels, mainly achieved due to the successful efforts to manage costs.

In response to a question about Brent Cross, Members noted that following the approval of Major Road Network funding for Gallows Corner Flyover, officers were now developing a full programme and a business case for the renewal works at Brent Cross, including details of the modelling of various scenarios to inform prioritisations. The team was in detailed discussions with the Department for Transport to gain support for the work. The Commissioner also underlined the importance of this work to demonstrate the need for these improvements to the transport network and their related wider benefits to London and the supply chain.

Members sought assurances on the availability of senior management support for staff involved in the decision-making process on critical assets renewals. It was noted that the Independent Investment Programme Advisory Group (IIPAG) had considered this matter and had made observations regarding the need for plans to be in place to ensure this. The Commissioner advised that TfL had put in measures to provide staff with clear escalation routes when considering challenging decisions, and senior staff had direct access to the Commissioner and may escalate to the Executive Committee using “guiding minds”, if necessary. A Member highlighted the need to also look further at lessons learnt from the Hatfield train derailment investigation about setting the appropriate levels of escalation. **[Action: David Rowe]**

It had been found that the incident highlighted in the paper and the previous incident last year concerning wheel damage to a tram, both related to embedded objects on the track rather than the rolling stock. Although there was nothing fundamentally wrong with the track, officers were looking at best practice elsewhere and also the technology available to identify objects on the track.

Simon Collins reported on IIPAG’s review of the Programme. Overall IIPAG considered that it was a well-run programme and wished to congratulate officers for this and also for mitigating risks. IIPAG had made several observations regarding the ongoing concerns about the condition of TfL assets, especially tram stock which was nearing the end of its life cycle. Although, TfL was looking to replace the trams, this would take time to introduce and so there was a need to continue to work to provide a reliable service. There were also concerns about the impacts on customer service. Management had responded to these recommendations and officers provided reassurance about their plans to look at reducing the procurement length of time for the new trams.

Members noted the paper.

28/06/24 Rail and Station Enhancements Programme - Annual Update

David Rowe presented the item, which provided an update on the achievements and progress of the Rail and Station Enhancements Programme.

The Programme covers enhancements on the DLR, High Speed 2 (HS2), London Overground, London Trams and the London Underground.

The paper set out details of the progress to date with its delivery. It also listed schemes in development and provided information on wider programmes, such as support on HS2 and trams enhancements (including Tram Replacement Rolling Stock Programme and the Sandilands Programme).

Regarding unforeseen costs for additional works, it was noted that the increased costs at Colindale and Stratford stations for the extent of the additional works only became clear at the detailed design stage at Colindale and once on-site at Stratford. These unforeseen costs were due to late design changes. A Member suggested that risks of additional costs and late design changes should be covered in the risk section of the report. **[Action: David Rowe]**

The Sandilands Programme had substantially been completed. Despite the delays due to issues with the electrical supply, works were now progressing well. Officers remained confident that it would be completed and in operation during this calendar year.

The Project Assurance team had undertaken a targeted review and would continue to engage with teams covering the Programme.

Under the authority in Standing Order 112, Mark Phillips exercised Chair's Action and:

- 1 approved increased Programme and Project Authority of £30.7m for 2024/25 for the Rail and Station Enhancements Programme giving a total Programme and Project Authority of £1,066.9m;**
- 2 noted that matters for which authorities were sought above include commitments that extend beyond the period of the 2024/25 Budget and provision would, therefore, need to be made for those commitments in future budgets; and**
- 3 noted that Procurement Authority for the various initiatives would be sought at officer level in accordance with Standing Orders.**

29/06/24 Asset Management Strategy Update

Stuart Harvey, Isabel Coman and Garry Sterritt presented the item, which provided an overview of TfL's asset management strategy. The overview addressed a request from the Chair of the Customer Service and Operational Performance Panel for an update showing the condition of TfL operational assets. The paper set out details of the Asset Management Framework, highlighting the risk-based approach to prioritisation of renewals. It also highlighted the work to link the renewals process to outcomes, the focus on standardising processes and the factors and constraints that shaped renewals allocations.

The Commissioner reported that TfL had recently reviewed its Business Plan to ensure it prioritised renewals, both in the current plan and going forwards. The Capital team had continued to make good progress with data management, aimed at better understanding the condition of assets. The team expressed a wish to make further improvements in the area, with the aim of creating a centralised system of asset information. The use of artificial intelligence to assist with managing the asset base was discussed. Officers stressed the need to first embed the new processes for gathering good quality data further. This would lay the groundwork for the potential further use of artificial intelligence, to maximise process effectiveness.

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

30/06/24 Forthcoming Key Procurement Activities

Rachel Sherry introduced the item, which set out the major new procurements or contract extensions with an estimated value over £1m planned over the next two

years. This also set out decisions that were anticipated to be required from the Committee through Chair's Actions, between this meeting and the next planned meeting in September 2024.

The paper also highlighted significant forthcoming procurements that required approval at officer level during that period.

The pipeline for strategy approvals and contract awards covered 271 contracts with an estimated total value of £18bn, reflecting equivalent annual spend of £3.1bn, when pro-rated factoring in the length of the contracts

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

31/06/24 Members' Suggestions for Future Discussion Items

Andrea Clarke introduced the item. No additional suggestions were raised for future discussion items on the forward plan or for informal briefings, other than those already noted during the meeting.

Members noted the forward plan.

32/06/24 Any Other Business the Chair Considers Urgent

There was no other urgent business to discuss.

33/06/24 Date of Next Meeting

The next scheduled meeting of the Committee would be held on Friday 20 September 2024 at 10.00am.

34/06/24 Exclusion of the Press and Public

Members agreed to exclude the press and public from the meeting, in accordance with paragraphs 3 and 5 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: Periods 10, 11, 12 and 13, 2023/24; Independent Investment Programme Advisory Group Quarterly Report; TfL Project Assurance Update; London Underground Four Lines Modernisation Programme; Asset Management Strategy Update; and Forthcoming Key Procurement Activities.

The meeting closed at 12.45pm.

Chair: _____

Date: _____

Programmes and Investment Committee



Date: 3 October 2024

Item 4: 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. Appendix 1 sets out the 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: Andrea Clarke, General Counsel
Email: AndreaClarke@tfl.gov.uk

Programmes and Investment Committee Action List (to be reported to the meeting on 3 October 2024)

Actions from the meeting held on 26 June 2024

Minute no.	Item/Description	Action by	Target Date	Status Note
27/06/24	<p>Streets, Bus and Rail and Sponsored Services Renewals Programme – Lessons Learnt regarding decision making escalation</p> <p>A Member highlighted the need to also look further at lessons learnt from the Hatfield train derailment investigation about setting the appropriate levels of escalation.</p>	David Rowe	September 2024	<p>Completed. TfL has safety management systems in place and keeps the levels of escalation under continuous review. For context there were many lessons learnt after the Hatfield train derailment. In particular, improvements were identified in the keeping of accurate asset data records and appropriate maintenance regimes. A paper is included on the agenda on TfL Lessons Learnt from Key External Reports, which, among its findings, identified improvement activities in progress and planned to support our culture of continuous improvements in the Investment Programme. While, that paper relates to the Edinburgh Trams system, many of the principles will follow through into our investment programme in how assets are renewed and enhanced.</p> <p>Regarding the process of escalation in day-to-day operation, London Trams, London Underground and DLR have their own safety management systems which include looking at track asset</p>

Minute no.	Item/Description	Action by	Target Date	Status Note
				<p>deterioration and methods that include a regime of regular inspections and monitoring. London Overground tracks are maintained to Network Rail standards (as most of the service is operated on Network Rail assets). All these systems are maintained through a series of thresholds which increase in levels of intervention if an asset deteriorates. For example, speed restrictions may be applied if track condition exceed a tolerance or condition specified in the relevant inspection or monitoring regime.</p>
<p>28/06/24</p>	<p>Rail and Station Enhancements Programme - Annual Update A Member suggested that risks of additional costs and late design changes should be covered in the risk section of the report.</p>	<p>David Rowe</p>	<p>September 2024</p>	<p>Completed The risks of cost escalation post concept design due to later design changes or works programme implications will be addressed in future submissions.</p>

Actions from previous meetings

Minute no.	Item/Description	Action by	Target Date	Status Note
06/02/24	<p>Investment Programme Report Quarter 3: Periods 7, 8, and 9, 2023/24: Piccadilly Line Upgrade (PLU)</p> <p>In responses to questions from the Committee, confirmation on how TfL is accommodating a strategy for spares for PLU, learning lessons from Central line challenges would be included in the PLU annual update to the September 2024 Committee meeting.</p>	Stuart Harvey	October 2024	Information is provided as part of the PLU annual review paper on the agenda for the meeting.
07/02/24	<p>Independent Investment Programme Advisory Group Quarterly Report: Environmental matters</p> <p>A new Net Zero matrix team had been established to share and coordinate progress in relation to environmental matters across the Capital team. A further update would be provided on this work to the Committee.</p>	Stuart Harvey	March 2025	Information will be provided as part of the annual review of the Corporate Environment Plan (Capital) update to be submitted to the Customer Sustainability and Operations Panel in March 2025.
10/02/24	<p>Technology Programme: Future Reports</p> <p>Changes to the Estimated Final Cost (EFC) for projects should be more clearly reflected in future reports, to provide the Committee with a more accurate understanding of developments with the Programme.</p>	Shashi Verma	March 2025	Changes to EFCs will be reflected in future reports to the Committee, with the next report scheduled for the meeting in March 2025.

Minute no.	Item/Description	Action by	Target Date	Status Note
11/02/24	<p>The Growth Fund: Analysis of the Overall Wider Benefits for the Economy</p> <p>At the request of Members, officers would look to analyse the overall wider benefits for the economy from the projects supported by the Growth Fund.</p>	David Rowe / David Christie	December 2024	Information will be provided as part of the update on Network Development and Third-Party Pipeline Programme scheduled for the meeting in December 2024.
12/02/24	<p>Network Development and Third-Party Pipeline Programme: Options Paper</p> <p>Members discussed whether the Committee should review the potential options, before a preferred option was selected for development, rather than only seeing the recommendation. Officers would consider this, taking into account the timing of when it would be best to bring the options and proposal to the Committee.</p>	David Rowe / David Christie	December 2024	An update will be provided on the Network Development and Third-Party Pipeline Programme, with a significant element on West London Orbital options at the meeting in December 2024.

Date: 3 October 2024

Item 5: Use of Delegated Authority

This paper will be considered in public

1 Summary

- 1.1 The use of delegated authority 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 26 June 2024, there have been:
- (a) no uses of specific authority delegated by the Board;
 - (b) one use of Chair's Action in relation to approving authorities relating to the Silvertown Tunnel Programme;
 - (c) one approval of Programme and Project Authority in relation to Elephant & Castle Station Capacity Upgrade;
 - (d) one approval of unbudgeted Financial Authority by the Chief Finance Officer in relation to Silvertown Tunnel Active Travel; and
 - (e) no Mayoral Directions within the Committee's remit.
- 1.3 Similar papers are submitted to the Finance Committee and the Land and Property Committee in respect of the use of Chair's Action, Authorities granted by the Commissioner and the Chief Finance Officer and any 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, the Deputy Chair and the Chairs of any Committee the exercise of any functions of TfL on its behalf, including the appointment of Members to Committees and Panels. If the Chair, the Deputy Chair or the Chair of a Committee is unable to exercise authority due to unavailability or a conflict of interests, that authority may be exercised by the Chair or Vice Chair of any Committee. Members will be informed as soon as practicable following any use of Chair's action using the authority of this standing order and it must be reported to the next ordinary meeting.
- 4.2 There has been one use of Chair's Action since the last meeting of the Committee.

Silvertown Tunnel

- 4.3 On 28 August 2024, Members of the Committee received a paper seeking the exercise of Chair's Action in relation to approving additional Programme and Project Authority for the Silvertown Tunnel Programme, to enable TfL to enter into additional commercial agreements. The value of the net payments was included within the forecast and the current Financial Authority, at the time of the request.
- 4.4 On 2 September 2024, the Chair of the Committee, in consultation with available Members, noted the paper and the exempt supplementary appendix and approved additional Programme and Project Authority in the sum set out in the exempt appendix.
- 4.5 A further update is provided elsewhere on the agenda for this meeting and includes information on the progress with reviewing risks and opportunities to bring costs within the current estimated final cost.
- 4.6 The use of Chair's Action was considered appropriate as agreement was required before this meeting to secure best value in these commercial agreements.
- 4.7 The public paper relating to this request has been published on tfl.gov.uk. The information in the appendix to that paper remains exempt from publication.

5 Programme and Project Authority and Procurement 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.
- 5.4 Procurement Authority is the authority to make a binding or contractual commitment with a supplier for the purchase of goods, services, land or works or to receive income arising from TfL Group activities in the areas of goods, services, land or works.
- 5.5 This paper reports on any use of Procurement Authority and Programme and Project Authority since the last meeting.

Approvals by the Commissioner and Chief Finance Officer

- 5.6 Elephant & Castle Station Capacity Upgrade – The Commissioner approved Programme and Project Authority of £37.7m for the delivery of the tunnelling works as part of the Elephant & Castle Station Capacity Upgrade project. The project is a major station upgrade that forms part of the wider redevelopment of the Elephant & Castle Opportunity Areas. Upon completion, it will provide step-free access, increased capacity, congestion relief, and will deliver a new Integrated Northern line Ticket Hall with new passenger links that connect to the existing Northern line platforms.

6 Financial Authority Approvals

- 6.1 Financial Authority is the authority to spend money, receive income, incur a financial liability or redistribute funds to relevant third parties in respect of their respective allocated budgets. Financial Authority is automatically granted to the extent that an activity or Programme or Project is 'budgeted'. This paper reports on any use of unbudgeted Financial Authority since the last meeting.

Approvals by the Commissioner and Chief Finance Officer

- 6.2 Silvertown Active Travel Works – The Chief Finance Officer approved unbudgeted Financial Authority of £3.1m for the Safe and Healthy Streets Programme for Lower Lea Crossing Active Travel scope, which is being provided in the context of Silvertown Tunnel.

7 Mayoral Directions to TfL

- 7.1 The Greater London Authority (GLA) Act 1999 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 often issued in relation to the implementation of matters in respect of which the Mayor delegates statutory powers to TfL.

- 7.2 Mayoral decision papers inviting the Mayor to issue a direction 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 relating to TfL are reported to the Board's Committees for information 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: <https://tfl.gov.uk/corporate/about-tfl/how-we-work/how-we-are-governed>. 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:

Silvertown Tunnel Chair's Action paper, issued 28 August and approved 2 September 2024

Greater London Authority Decision Making Database.

Contact Officer: Andrea Clarke, General Counsel
Email: AndreaClarke@tfl.gov.uk

Date: 3 October 2024

Item 6: Investment Programme Report Quarter 1, 2024/25

This paper will be considered in public

1 Summary

- 1.1 The Investment Programme Report, included at Appendix 1, describes the progress and performance in Quarter 1, 2024/25 (1 April 2024 to 22 June 2024) 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 paragraphs 3 and 5 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and in respect of which a claim to legal professional privilege could be maintained in legal proceedings. 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 1 2024/25

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: Claire Mann, Chief Operating Officer
Email: ClaireMann@tfl.gov.uk

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



Investment programme report

Quarter 1 2024/25
(1 April to 22 June 2024)

Contents

3 Introduction

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

6 Our performance

- 7 Environmental initiatives
 - 11 Safety performance
 - 13 Strategic milestones
 - 15 Schedule performance
-

16 Major projects

- 17 Four Lines Modernisation
 - 19 DLR rolling stock and systems integration
 - 21 Piccadilly line upgrade
 - 24 Silvertown Tunnel
 - 26 Bank station capacity upgrade
-

28 Rail and station enhancements

- 29 High Speed 2
 - 30 Elephant & Castle
 - 30 Battersea Power Station western entrance
 - 30 East London line enhancement programme
 - 30 Tram replacement rolling stock
 - 31 DLR Thames Wharf
 - 31 DLR Royal Docks
 - 31 London Underground
-

33 Safe and healthy streets

- 35 Cycling infrastructure
 - 35 Vision Zero
 - 35 Pedestrian safety
 - 36 Bus priority
 - 36 Transformational schemes
 - 36 Borough funding
 - 37 Bus safety
-

38 Environment

- 39 London-wide Ultra Low Emission Zone
 - 40 Direct Vision Standard phase 2
 - 40 Electric vehicle infrastructure delivery
 - 40 Zero-emission support fleet
 - 40 Zero-emission bus fleet
 - 41 Waste heat
 - 41 Solar private wire
 - 42 Buildings decarbonisation
-

43 Technology

- 44 Operations technology
 - 46 Technology and data
-

49 Street, bus and rail-sponsored service renewals

- 50 Streets
 - 52 Buses
 - 52 River Services
 - 52 London Overground
 - 52 DLR
 - 53 London Trams
-

54 London Underground renewals

59 Appendix: Our safety performance data

Introduction

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





The Elizabeth line is among the many services that we run for London

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, DLR, London Overground, Elizabeth line, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and 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 from the Programmes and Investment Committee. It includes programmes of 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 I, which runs from 1 April to 22 June 2024. For each key project or programme, the financial and milestone data represent the position at the end of Quarter I, with 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.

Investment programme delivery structure

Our investment programme is delivered by the areas of business set out below. This is reflected in the structure of the report, which comprises the following areas:

Major projects

This includes 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 and major station upgrades.

Rail and station enhancements

This brings together London Underground and surface-related enhancements. In particular, where there are links to third-party developments and funding, it recognises the similarities in the activities involved and the outcomes that they deliver.

It includes the HS2 programme, Elephant & Castle station capacity upgrade project, the East London line, Surrey Quays station, Canada Water bus station, Signalling enhancements and power reinforcements, Tram replacement rolling stock, DLR Royal Docks and DLR Thames Wharf.

Safe and healthy streets

This programme comprises Cycling infrastructure, Vision Zero, Bus priority and Bus safety, among others.

It recognises the importance of holistic investment in the bus network, alongside cycling and walking, to increase travel by sustainable modes.

Similarly, the addition of bus safety schemes such as intelligent speed assistance alongside the Safer Junctions and Lowering speed limits programmes aligns activities to improve safety on London's road network.

Environment

This includes the London-wide Ultra Low Emission Zone (ULEZ), Direct Vision Standard phase 2, Electric vehicle infrastructure, Zero-emission bus fleet, Waste heat, Solar private wire and Buildings decarbonisation, while also reflecting the new green project pipeline that is being developed.

Technology

This programme comprises two technology programmes. Operations technology covers activities such as Enforcement, compliance, safety and security, Network and public transport management, Cycling and micromobility, Connectivity and Digital asset management.

Technology and data includes projects focusing on Oyster card payment, contactless payment, the Tfl Go app and several projects relating to our internal technology services.

These have separate governance despite sharing common resources, stakeholders and delivery of strategic outcomes.

Streets, bus and rail-sponsored services renewals

This groups together renewals of Streets, Buses, River Services, London Overground, DLR and London Trams.

These programmes share a common approach to work-bank management and by combining associated activities such as bus-focused renewals, we can improve investment prioritisation and efficiency.

London Underground renewals

This covers two main London Underground renewals activities – Train systems and Infrastructure.

Grouping these activities enables a more holistic oversight and prioritisation in managing renewals across programmes. In addition, this programme incorporates Railway systems enhancements and Elizabeth line renewals.

Our performance

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



Environmental initiatives

In April, we concluded a two-year workstream leading on the development of the UITP (International Association of Public Transport) climate change adaptation framework.

Air quality

London-wide Ultra Low Emission Zone

The ULEZ successfully expanded London-wide on 29 August 2023, ensuring five million more Londoners can breathe clearer air. The first-month report did not cover the impact of the scheme on air pollutant emissions and concentrations.

However, the recent six-month report, published on 25 July 2024, showed that, in the six months of operation, vehicle compliance in outer London increased by five percentage points – from 91 per cent in June 2023, to 96 per cent. This is nearly the same level of compliance as seen in inner and central London, with 96.5 per cent and 96.4 per cent, respectively.

In addition, in February 2024, the number of non-compliant vehicles seen driving in London on an average day had decreased by 90,000 compared to June 2023, a reduction of 53 per cent. Regarding emissions, pollutants across London in 2023 are dramatically lower than would have been expected if we hadn't expanded the ULEZ Londonwide.

Nitrogen oxide emissions from cars and vans in outer London are estimated to be 13 per cent and seven per cent lower, compared to a scenario without the ULEZ, while particulate matter exhaust emissions from cars and vans in outer London are estimated to be 20 per cent lower than they would have been, had we not expanded ULEZ to outer London.

Since 30 January 2023, the largest vehicle scrappage and support scheme of its kind in the UK has been available to assist Londoners with vehicles that do not comply with ULEZ emissions standards. Up to 26 May 2024, more than 50,000 applications had been approved, which equates to almost £180 million of support committed for eligible Londoners.

In March, the Mayor launched an expanded ULEZ scrappage scheme that gives applicants the option to donate their non-compliant vehicles to Ukraine, via a trusted partner, for humanitarian purposes. Those who choose to donate their vehicle receive the same level of grant payment that is available to those who choose to scrap their vehicle. The most recent available data shows that 409 vehicles have been accepted for donation to Ukraine since this option became available (from 15 March 2024).

A number of ULEZ support offers were also secured to help Londoners (irrespective of whether they received a scrappage grant) save money and use greener, cleaner forms of transport. This includes offers from more than 30 partners receiving money off hire and subscription services for bikes, e-bikes, cargo bikes and e-scooters, discounts on car clubs and many other great deals. To date, there have been more than 2,000 redemptions of ULEZ support offers.

This is in addition to a set of temporary exemptions ('grace periods') to support disabled people, community transport minibuses, people using wheelchair-accessible vehicles, and businesses and

charities with brand-new compliant vehicles or a retrofit solution on order. More than 7,200 applications have been accepted to date for these grace periods.

Air quality on London Underground

Our robust programme to tackle Tube dust in our stations, focuses on enhancing our cleaning, research, and monitoring, as well as using innovative technologies to reduce dust.

In May, we restarted our annual air quality monitoring in driver cabs across eight London Underground lines, which has since been completed. We also restarted monitoring at 24 London Underground stations, to run until 31 August.

We carry out air quality monitoring using specialist firm 4Rail Services primarily to measure levels of respirable dust (PM4.3). This is largely for occupational health purposes and to ensure we remain within the legal occupational exposure limits set by the Health and Safety Executive. We publish all air quality monitoring reports on our website. The results from cabs and stations are due to be published later in 2024.

Results from 2023 monitoring rounds show that dust levels on the London Underground have been falling over the last four years. In line with this programme, a trial of air filtration units recently went live at Baker Street station and will run for around six months to test the effectiveness and practicality of this type of technology at tackling dust on the Tube. Data will be collected and monitored throughout to ascertain the effectiveness of this technology.

Climate emergency

Zero-emission buses

We exceeded our target for the end of March for 1,400 zero-emission buses in our fleet. At the end of June, we had more than 1,500 buses in operation using electric energy or hydrogen instead of fossil fuels and remain on target to increase that number to 1,900 by the end of the 2024/25 financial year. London continues to have the largest zero-emission bus fleet in western Europe, having grown from just 30 buses in 2016. Since March this year, four further routes have converted to zero emission – namely routes 152, 276, 307 and 384.

Our opportunity-charging trial on route 358, launching later this year, will continue to build on the electric bus charging infrastructure network by using pantograph technology. This commitment to make best use of technology to accelerate positive outcomes is a core part of our vision to be a strong, green heartbeat for London.

Buildings decarbonisation

Our multidisciplinary Net zero matrix team is leading on our wider work to decarbonise and achieve the Mayor's target of a net zero London by 2030. The team commissioned a series of feasibility studies to explore the options and opportunities for phasing out fossil fuel-based heating systems and implementing energy efficiency measures to improve building performance. These studies have been conducted at a range of operational sites from different transport modes, in partnership with Arcadis.



Sustainable drainage slows the rate of surface runoff to reduce flooding

The first package looked at 19 buildings, including depots, maintenance buildings, track offices and train crew accommodations. The studies are now complete and are being reviewed.

A prioritisation exercise to determine which sites will progress to the next stage of design is currently underway. The results of this exercise will also help to inform which sites are most suitable for a Department of Energy Security and Net Zero Phase 4 Public Sector Decarbonisation Scheme application, which is expected to be open for grant funding applications later in 2024.

LED upgrades across the network

We continue to transition our network to LED lighting to make it brighter, safer and more energy efficient. To date, 95 per cent of bus shelters, 67 per cent of street lighting on the TfL Road Network and 47 per cent of London Underground stations have been converted. LED lighting consumes approximately 57 per cent less energy than fluorescent lighting while providing brighter light in our public spaces, making them safer for our customers, especially those travelling at night.

Keeping materials in use: connecting schools with digital services

As of June, we have distributed more than 800 repurposed laptops and iPads to 38 London state schools. Since 2020, our colleagues have been repurposing our decommissioned IT equipment as part of the Devices for Schools initiative. The devices no longer have commercial value for TfL and volunteer time is used to decommission them. Approximately

79 per cent of the total embodied carbon of equipment like this comes from the sourcing of its components and the energy used in manufacturing, therefore finding opportunities for re-use helps significantly reduce the environmental impact of these products. The next phase of Devices for Schools aims to connect up to 60 schools with 6,000 iPads, laptops and computers.

Power Purchase Agreement

Our first Power Purchase Agreement tender is a vital step towards ensuring that our operations can be net-zero carbon by 2030. The tender encourages the market to increase the volume of new renewable energy supplying the National Grid, thereby providing 'additionality' (new renewable generation). We are progressing with the procurement and contract award is expected later in the autumn.

The Office of Rail and Road review

The Office of Rail and Road (ORR) has updated the environmental guidance associated with its licence conditions for railway licence holders. As part of assuring the implementation of the new guidance, the ORR undertook a review of railway licence holders' environmental arrangements, supported by infrastructure consultants AECOM.

The review process has been ongoing since July 2023, with 60 licence holders reviewed, 30 of which were sampled for a quality review and five invited for interview. The results were positive for TfL, with the full report providing a useful quality matrix scoring guide and recommendations that we can use, review and take forward.

Tolworth Roundabout

Works on Tolworth roundabout were completed in May. This included the installation of more than 7,750 square metres of Sustainable Drainage Systems (SuDS) catchment.

The high risk of flooding in London means the network of sewers and drains are at, or near, capacity in many areas.

SuDS help to reduce the risks of flooding by managing and slowing the rate of surface water runoff into our waterways and sewage systems. They also have a variety of other benefits, including helping to reduce the levels of pollution entering our waterways, and can support biodiversity. In the last financial year, we delivered 11,420 square metres of catchment into highway SuDS, exceeding our annual commitment of 5,000 square metres. This year, we have a TfL scorecard target to deliver 9,000 square metres of catchment into SuDS.

Gallows Corner carbon champion

Reducing our carbon impact at Gallows Corner in Romford has resulted in the project being awarded Carbon Champion status by the Institution for Civil Engineers.

Following a carbon modelling assessment, the team responsible for the Gallows Corner flyover project is choosing to refurbish the flyover rather than replace it, meaning its carbon impact is anticipated to be reduced by around a third.

The project is now our third to be awarded Carbon Champion status. A project needs to have achieved, or be projected to achieve, quantifiable carbon savings in order to be awarded this status.

UITP framework

In April, we concluded a two-year workstream leading on the development of the UITP (International Association of Public Transport) climate change adaptation framework. This sets out seven clear stages that organisations in the public transport sector should follow to begin and develop their adaptation journey and enhance organisational maturity. We included case studies to show practical examples of how organisations across the globe are adapting to climate change.

The four recommendations of the framework are:

- Public transport organisations should exercise a leadership role in developing a new mindset, leading to greater awareness and a strategic approach on climate change adaptation across the sector and beyond
- Public transport organisations should develop holistic climate risk management to implement appropriate adaptation measures
- Public authorities should support cities and public transport systems by developing a policy toolkit dedicated to climate change adaptation
- Funding organisations should dedicate appropriate funding and financing to support adaptation to climate change of public transport systems

Green infrastructure and biodiversity

Wildflower verges

Our Green infrastructure and biodiversity plan set out the steps we are taking to support London's response to the ecological crisis by protecting, connecting and enhancing the city's green infrastructure and biodiversity.

Wildflower verges encourage biodiversity, supporting pollinators such as bees and butterflies, which in turn help wildflowers to thrive. Many other insects, birds and small mammals' habitats are also enhanced by these verges, which create a supply of food, nectar and shelter.

This spring, we met our target to double our wildflower verges for a second year in a row from 130,000 square metres in 2023 to 260,000 square metres in 2024, which is equivalent to 36 football pitches. We will continue to maintain these verges to ensure they remain safe for all road users.

Planting street trees

Tree canopy, the area covered by tree foliage, covers approximately 19 per cent of our estate and plays an important role in supporting climate adaptation in London. Trees can help to reduce the risk of surface-water flood in built-up areas and also provide shade and cooling in warm weather.

We have completed an assessment of the most suitable methodology and tools to use to model changes in tree canopy cover

over time. The next step will be to proceed with the modelling work, which will help us identify tree-planting opportunities and draft a Tree canopy cover plan by March 2025. This plan will detail how we will increase tree canopy cover across our estate by 10 per cent by 2050, compared with the 2016 baseline.

Our 2023/24 street tree-planting programme saw a net increase of 236 street trees, which takes our total to 25,031 street trees now planted across London. This means we have met the Mayor's target of a one per cent annual increase in the amount of street trees planted since 2016.

Funding for a habitat bank

For all our projects that go through planning, we are under a legal obligation to increase biodiversity by at least 10 per cent for that site. Ideally, biodiversity net gain will occur on the site under development, however where this is not possible, we are able to deliver this on other parts of our estate, or purchase 'offsets' from another provider.

To help reduce the costs of delivering biodiversity net gain, we are working on a bid to the GLA for funding that would allow us to create our first habitat bank. A habitat bank would enable us to deliver biodiversity units on our estate to support development projects and may also have potential to generate revenue through the sale of surplus units.

Sustainable resources

Removal of polychlorinated biphenyl from London Underground

Work to remove assets suspected of containing polychlorinated biphenyl (PCBs) from the London Underground network will be completed by December. The Environment Agency visited London Underground in June to view the last of the PCB removal work from signalling assets. PCB removal from all other asset classes is complete.

Sustainability awareness toolkit launch

In May, we launched our Sustainability awareness toolkit across the business. Following the Sustainability Summit, and sustainability awareness training for directors and senior managers in autumn 2023, the toolkit was created to provide a 20 to 30-minute presentation to cascade the basics about sustainability throughout TfL. It contains talking points for use at a team meeting or away day to inform and support meaningful discussions about helping TfL to become a more sustainable organisation.

Carbon literacy update

We have now trained more than 5,000 colleagues in carbon literacy since we began offering the course in July 2022. This milestone highlights our commitment to sustainability and the collective effort of our volunteer trainers and coordinators across the business. Our carbon literacy training programme was also highly commended in the sustainability category at the 2024 Chartered Institute of Highways and Transport awards in June.



We continue to add to the 25,000-plus street trees planted on our roads

Safety performance

The full safety report on the network is contained in the Safety, health and environment report. The update for Quarter I 2024/25 below is for the programmes mentioned in this Investment programmes report

Capital

Capital includes all activity under the Chief Capital Officer and maintenance activity under the Chief Operating Officer. In Quarter 4, our Capital programmes and projects delivered a combined total of 1.4 million site-based hours, an increase of 0.2 million on the previous quarter.

Quarterly performance

In Quarter I, there were no incidents which required reporting under the Reporting of Injuries Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR). As a result, the RIDDOR accident frequency rate for the Capital has reduced to 0.02. This is below the target of 0.06.

There was a total of six injuries (all minor) reported during Quarter I for Capital, none of which were registered as lost-time injuries, with no common causes. Injuries to colleagues working in Capital continue to remain at a low level as we work towards our zero harm ambitions.

This is consistent with the number of injuries that occurred during the same period in 2023/24, with five occurring.

Of these incidents, two were colleagues directly employed by TfL and four were from our supply chain. There were no common trends or patterns that could be identified between the incidents themselves.

This results in the all-injury frequency rate for TfL colleagues in Capital increasing to 0.23, above the target of 0.08, and the rate for TfL contractors increasing to 0.64, above the target of 0.40.

Although the performance data demonstrates a slight increase in the rates of minor injuries, it demonstrates an improvement in the overall safety performance of the directorate by the reduction of major injuries resulting in either RIDDOR or lost time. This performance is also favourable in comparison to similar client organisations, with TfL Capital's incident, lost time and RIDDOR frequency rates significantly below the sector average.

There have been no significant incidents that have occurred because of activities undertaken by the Capital directorate.

However, as part of the Telecommunications commercialisation programme for Technology and data, there were two fire incidents, both of which occurred during engineering hours. One was at Charing Cross on 27 May and the other at Edgware Road on 20 June. These small fires were the result of drilling into metal fixtures undertaken by a contractor, which resulted in hot swarf igniting hidden dust and debris.

These incidents have been reported to the Office of Rail and Road as RIDDOR reportable dangerous occurrences and recorded under operations in the TfL performance data. The suppliers involved have been very proactive in sharing their investigation findings. TfL issued a SHE alert and has launched a formal investigation, both to understand the root causes and look at the wider issues involved in how we can effectively assure ourselves on the work of others on our infrastructure.

Confrontations associated with ULEZ still featured highly in the quarter. Incidents included an assault, eggs and white spirit thrown, a car kicked and vehicles blocked in, as well as faulty cameras stolen after a confrontation.

We continue to work with our supply chain, the police and the wider GLA community to identify ways of reducing these incidents as well as undertaking training and briefing sessions on reducing conflict and conflict resolution for our colleagues. In Quarter I, there were five arrests. Two have been convicted and two charged. One case was closed as CCTV was unavailable.

Improvement activity

The Four Lines Modernisation project held two sessions with a high level of interaction to share and discuss some of the wider lessons learnt from the Sandilands tram tragedy.

Wingate are replacing lighting at Kings Cross. They now deploy defibrillator units to their site teams, which will be available to TfL staff and public too if needed.

Capital SHE strategy

This quarter we launched the Capital SHE strategy, which places safety, health and environment at the heart of everything we do, providing a framework to deliver improvements in SHE performance across the value chain for capital and asset management.

The strategy supports TfL's aims of 'Everyone home safe and healthy every day' and 'Tackling the climate and ecological emergency', with an overall ambition of preventing harm. Capital will lead by example to reduce all forms of harm and embrace solutions to protect and enhance our environment.

The strategy supports this ambition by focusing on three SHE outcomes:

- Improve Capital's SHE performance
- Deliver on TfL's Safety and health and Green strategic priorities and success measures
- Build a proactive SHE culture

This three-year strategy sets out how we will achieve the outcomes, with a clear trajectory to meet TfL's 2030 strategic targets.



Our on-street services team works to improve safety for all customers

SHE culture

To improve our safety, health and environmental performance, we are working to establish a more positive and proactive SHE culture across the organisation. This means ensuring SHE is at the heart of everything we do, so that colleagues feel responsible and enabled to improve the way we operate.

SHE culture assessments

Over the past year, teams have been completing assessments to measure their SHE culture and understand where improvements can be made.

In Quarter I, more than 2,000 colleagues took part in the assessment process across our London Underground operational planning, Elizabeth line, Licensing and regulation, and Crime, policing and on-street services teams. In addition, three teams published action plans with targets for improving their SHE culture.

SHE culture programme

Alongside local improvement plans, we are delivering a series of business-wide projects to improve TfL's SHE culture.

This includes a focus on improving our approach to SHE leadership, building a just and fair culture where colleagues feel fairly treated and enabled to report, and creating a learning organisation where colleagues are empowered to share lessons to drive continuous improvement.

In Quarter I:

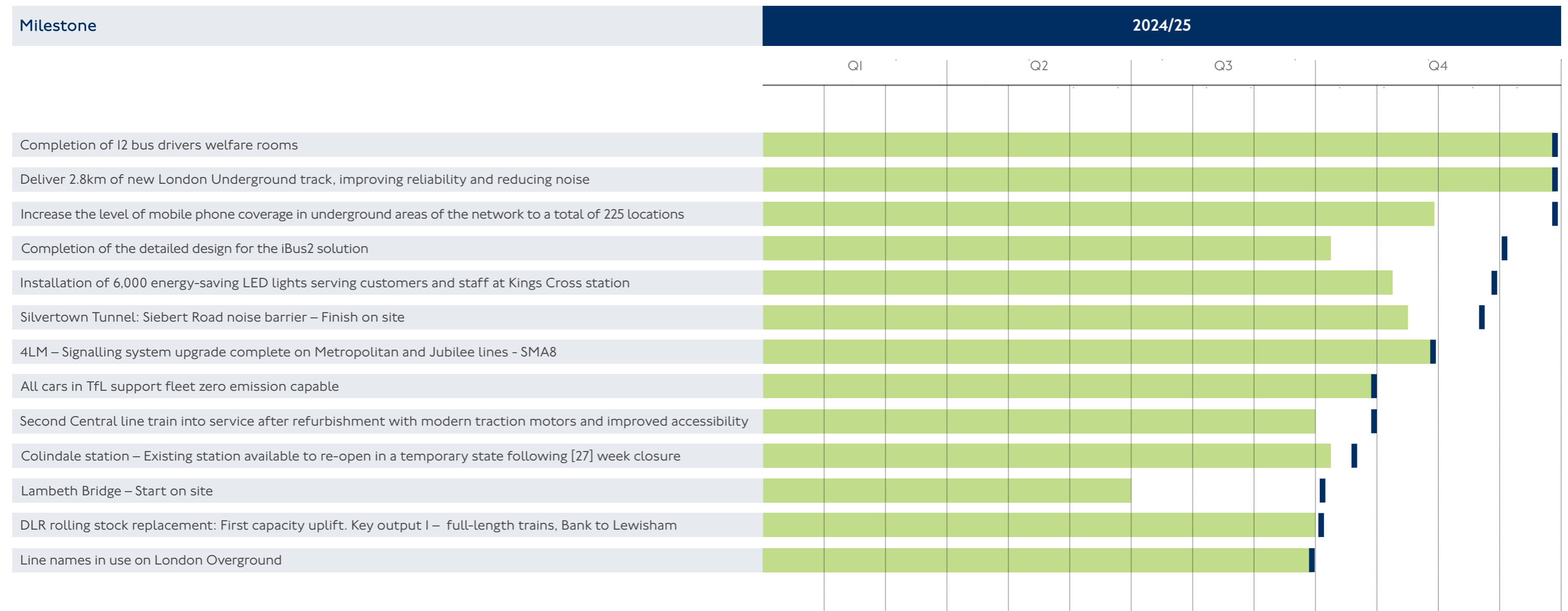
- A total of 106 SHE leadership engagement tours were completed. These aim to improve leadership visibility and engagement on SHE
- Forty-eight colleagues completed our new online training courses on SHE leadership engagement and 'Just and Fair'
- Five CIRAS (confidential incident reporting and analysis system) reports were received from London Underground and two from Buses. Specific trends are not visible at this point of the year, however there were a variety of different issues in relation to personal and customer safety. All CIRAS reports received in Quarter I have been actioned and feedback given to staff

Strategic milestones

We delivered two of the 26 milestones set for the year in Quarter 1

All strategic milestones scheduled for completion in Quarter 1 were achieved on time. Two milestones are forecast to be late and 22 milestones are on track.

Below are our strategic milestones for 2024/25. The solid blue bar shows when the milestone is due to be met, while the green, amber and red blocks show 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
 ■ Planned delivery date

Strategic milestones 2024/25 (continued)



■ Delivered on time or earlier than planned
 ■ Delivered less than 90 days later than planned
 ■ Planned delivery date

Schedule performance

We achieved the two milestones scheduled for completion in Quarter I on time. Two milestones are forecast to be late

Milestones achieved on time

Street, bus and rail-sponsored services renewals – Completion of trams track renewal

We successfully completed the East Croydon and George Street trams track renewals in April 2024, in Quarter I.

London Underground renewals – Crossrail residual work – Completion and commissioning of critical system upgrades to Elizabeth line signalling system

We successfully completed and commissioned the critical system upgrade to the Elizabeth line signalling system at the beginning of June 2024.

Milestones forecast to be late

London Underground renewals – Jubilee line (fleet overhaul and component renewal) – Train underframe refurbishment complete on the first 48 trains of the Jubilee line fleet

This strategic milestone slipped in the last two months due to shortage of staff, which has now been rectified. As a result, the milestone has stabilised, and we plan to recover lost time through new ways of working.

London Underground renewals – Northern line (Kentish Town escalators) – Kentish Town London Underground station re-opening following escalator replacement

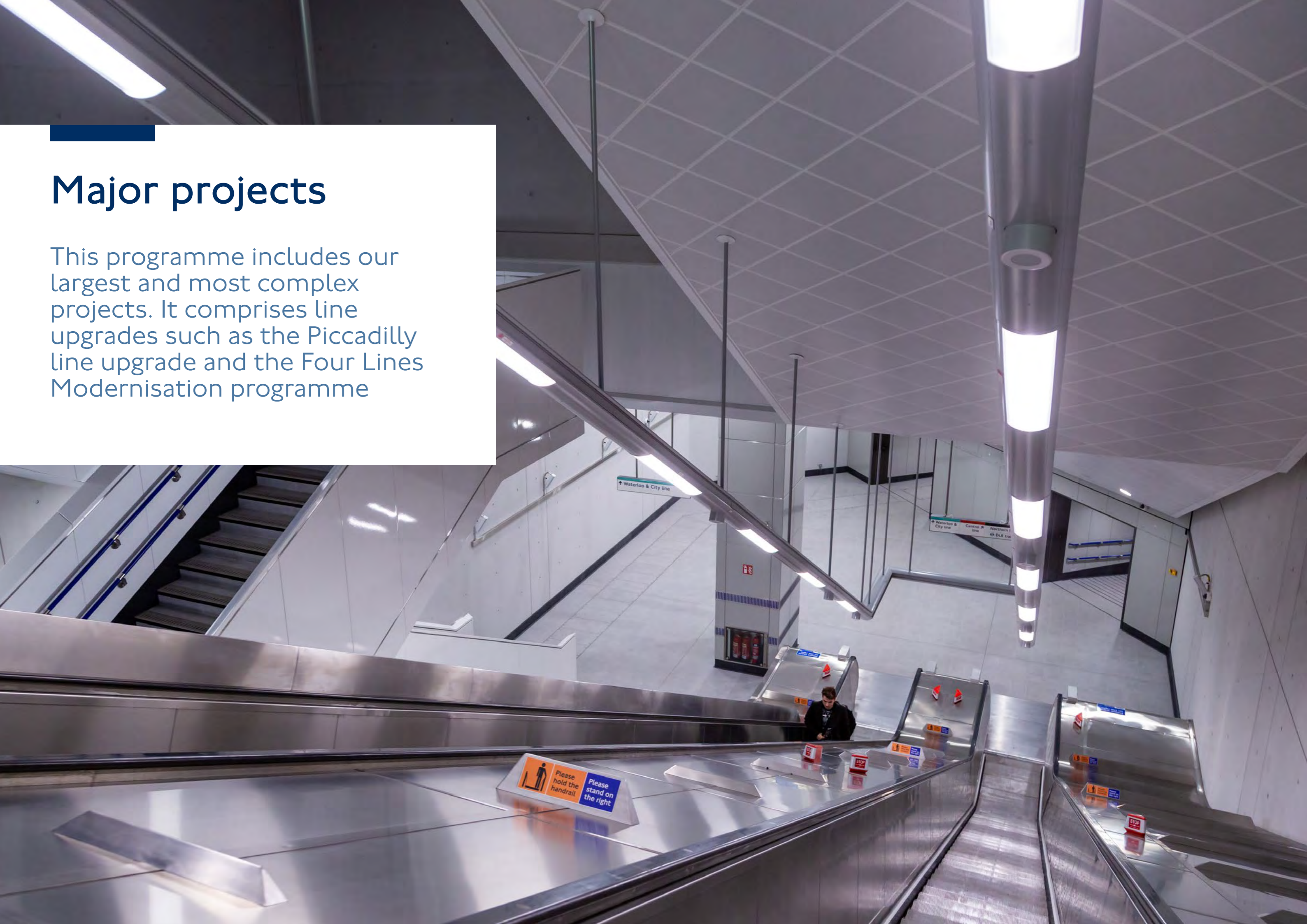
The condition of some structural elements of the station, which could not have been inspected prior to the start of the project, has been assessed as beyond repair. The team has had to increase the project scope to include the replacement of these parts. This comes with additional design, manufacturing, installation and concrete-curing times that are now critical to opening the station. As a result, the completion date has been pushed back, and the forecast has been revised to December 2024, based on the critical path activities.



Upgrades to the Elizabeth line signalling system were completed in June

Major projects

This programme includes our largest and most complex projects. It comprises line upgrades such as the Piccadilly line upgrade and the Four Lines Modernisation programme



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)
Q1 2026/27	5,379	190	5,569	5,520	(49)
Change since last Investment programme report					
2 quarters later	16	27	43	No change	

Financial commentary

The estimated final cost (EFC) for the programme has increased by £43m since the last report, reflecting both additional risk provision combined with the change in the forecast completion date for the final signal migration area (SMA), which has been revised to Quarter I 2026/27.

The extension of the programme is principally due to the technical complexity of the next two SMAs to go live (SMA 8 and 9), which has necessitated additional development and testing of the signalling software to ensure it operates reliably.

A review of cost and time has been undertaken, which informed an increase in Programme and Project Authority to £5,541m and was approved at the

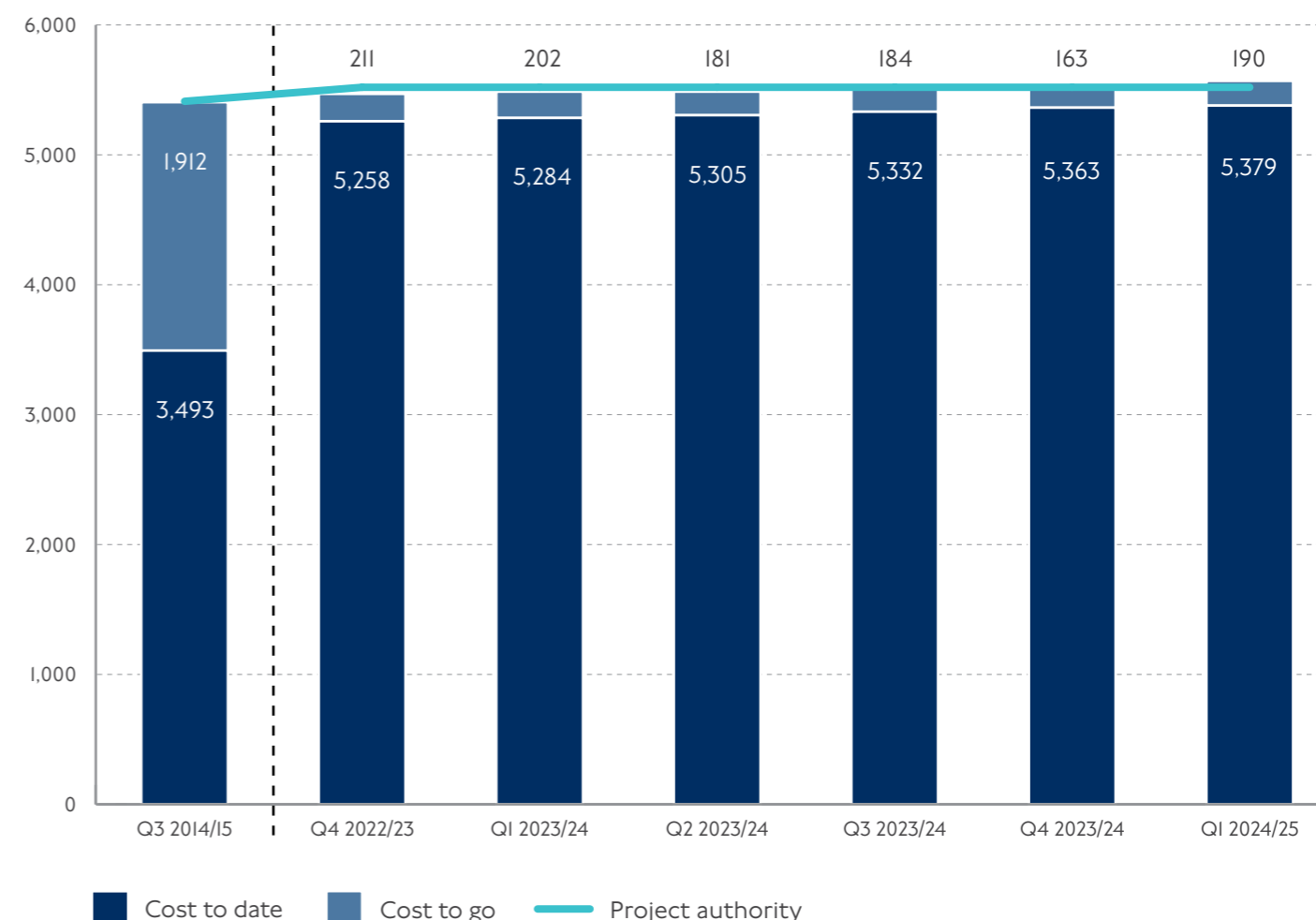
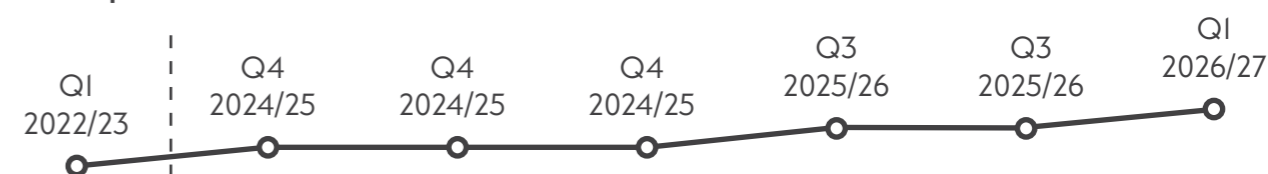
Programmes and Investment Committee meeting on 26 June 2024. As this approval was after the close of the reporting period for Quarter I (Periods 1-3), this will be reflected in the table and graph in the Quarter 2 2024/25 report.

The EFC will remain above Programme and Project Authority due to the included risk provision which reflects that Four Lines Modernisation is a complex and challenging programme and remains under both schedule and cost pressure as we progress with the development and commissioning of the most complex areas.

We continue to explore a range of opportunities to mitigate these pressures where possible, including assessing the benefits of different delivery strategies.

Estimated final cost performance over time (£m)

Forecast completion date



All the figures in the table above are shown excluding income and third-party contributions.

Performance over time commentary

The forecast completion date shows when the final SMA is expected to be brought into service. The date has been delayed from the initial forecast made when the signalling contract was awarded in 2015. This is principally owing to challenges with complex software development, testing and commissioning, closure availability and, to a slightly lesser extent, the coronavirus pandemic.

Following a detailed collaborative review with our signalling supplier we now expect to deliver the next SMA (SMA 8) in Q4 2024/25 and the final SMA (SMA14) in Quarter 1 2026/27. The revised schedule reflects an updated assessment of the timescales for development, testing and commissioning as well as the completion of operational readiness activities.

Programme update

The Four Lines Modernisation programme is transforming the Circle, District, Hammersmith & City and Metropolitan lines by replacing ageing infrastructure. It has already provided 192 modern, air-conditioned walk-through trains and is in the process of introducing a new digital signalling system which will make journeys faster and more reliable.

The programme is delivered by progressively installing new signalling on sections of the railway known as SMAs. The new automated signalling system is already in operation through 62 stations, including the whole of the Circle and Hammersmith & City lines, as well as the central section and east end of the District line.

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 small sections of the west end of the District line from Barons Court to Stamford Brook and Fulham Broadway to East Putney (SMA 10/12 Boundary Moves).

We have made significant progress in designing and installing the remaining trackside signalling assets, with installation of these assets now substantially completed.

The programme is now principally focused on the development, implementation and testing of the signalling software to enable the new signalling system in the remaining SMAs to go live.

The Metropolitan line areas are the most technically complex areas in the programme. They present significant and unique challenges, which are associated with the integration of the new signalling system with the Jubilee line and Neasden depot train control software, along with the management of manually driven Chiltern trains and integration with the Piccadilly line.

We have continued to make progress in developing and testing the new signalling software in the next two areas to go live, SMA 8 (Finchley Road to Preston Road) and SMA 9 (the Harrow area).

The most recent system testing on site was conducted during a weekend closure on 13 and 14 July in SMA 8. During this closure we were able to test all train stock types that operate in this complex interoperable area, complete a volume of outstanding test scope-and-see fixes to issues that had been identified in previous testing. This represents a significant step, with the team gathering new evidence to support readiness to go live in early 2025.

Preparations for the introduction of a new timetable in early 2025 are also continuing. This new timetable will improve average journey times between Stepney Green and Upminster by five to 10 per cent. This builds on previous journey time improvements the programme has already delivered of up to 10 per cent in SMAs 1-5.

Works are progressing on the planned upgrades to the heavy-lifting shed at Neasden depot.

The detailed design for the new staff accommodation block is planned for completion in Quarter 2 2024/25 and will include a number of sustainable technologies to minimise operational carbon and environmental impact, including a solar panel system (with any excess electricity feeding back into the London Underground supply network), LED lighting and a new, efficient intelligent heating and cooling system. Once built, these facilities will enable the planned overhaul of the Metropolitan line train fleet.

Line upgrades

DLR rolling stock and systems integration

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)
Q3 2027/28	540	402	942	881	(61)
Change since last Investment programme report					
No change	No change	No change	No change	No change	No change

Financial commentary*

There has been a significant EFC increase to the programme as a result of the insolvency of the principal contractor delivering infrastructure works at Beckton depot in Quarter 2 2023/24, and the reassessment of the likely outturn cost of all remaining works across the entire programme, including estimates for unprocured scope and future inflationary allowances.

We continue to review options to mitigate these cost pressures where possible and will provide a further update to the Programmes and Investment Committee in October 2024 and, if required, seek additional Programme and Project Authority.

Performance over time commentary*

Since Programme and Project Authority was granted in 2019, we have received approval from the then Government to purchase II

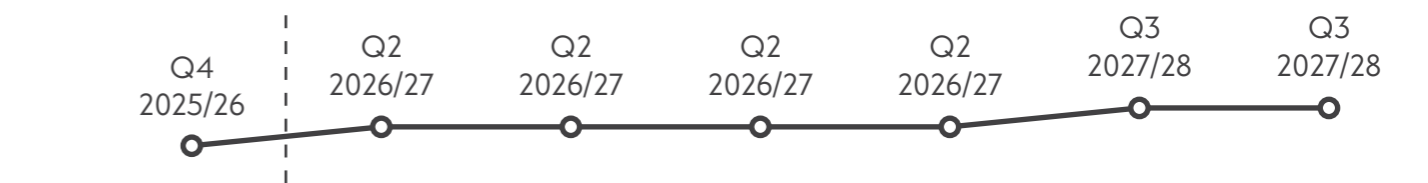
additional trains funded through the Housing Infrastructure Fund (HIF). The increase in EFC from Quarter 4 2018/2019 reflects the additional scope associated with the £261m of grant funding from the then Government to deliver the HIF scope of works.

The EFC in Quarter 4 2023/24 reflects a reappraisal of the initial estimates of the impact of the insolvency of the principal contractor delivering infrastructure works at Beckton depot and the reassessment of the likely outturn cost of all remaining works across the entire programme, including estimates for unprocured scope and future inflationary allowances. This has resulted in a higher range than our initial estimates and a higher mid-point, which is reflected in the current forecast. The planned completion date is now based on incorporation of the HIF-funded works to the schedule.

All the figures in the table above are shown excluding income and third-party contributions.

Estimated final cost performance over time (£m)

Forecast completion date



* The Financial commentary and Performance over time commentary above are as per Quarter 4 2023/24, while we review our position. We hope to provide an update in the Quarter 2 report.

Rolling stock delivery

We have previously advised of some issues during train integration testing in late 2023. The engineers have developed a plan to overcome these issues. However, while doing this, they have identified a pre-existing technical issue with the legacy signalling system which has resulted in a series of speed restrictions being introduced in some sections across the DLR network. This issue was identified outside the reporting period but, due to the significance, it is being included in this report.

Work is underway to optimise these speed restrictions, which will hopefully minimise the impact to customers on the DLR network. As a result of the legacy signalling issue, further detailed analysis is also required for the new trains, alongside existing software modifications. This has meant the new DLR trains will not be able to be introduced this year. We do now have a solution for the new trains to enter passenger service, but the initial programme is currently being stress-tested and optimised. A further update will be given at the next meeting.

Beckton depot and network infrastructure

We continue to work to mitigate the impact of the insolvency of our northern sidings contractor, Buckingham Group.

We have implemented interim alternative arrangements to progress the works through Morgan Sindall Infrastructure Ltd, our southern sidings and maintenance building contractor, while we finalise the variation to their existing contract. After overcoming a number of challenges in the transfer of these works between contractors, physical works on the northern sidings to allow them to be commissioned are now complete and we anticipate completing the remaining works and bringing the northern sidings into use in Quarter 2 2024/25.

Works are progressing in parallel on the southern sidings and we anticipate bringing these into service shortly after the northern sidings. The invitation to tender for the design and build contract for the new southern expansion of Beckton depot, funded through the HIF, has been issued, with responses received in July.

Construction has started on a second entrance at Blackwall station, with piling works now complete. Enabling works for the superstructure of the steelwork for the new entrance have begun. Power resilience works have been completed on three of four routes on the DLR network.



The manufacture of new DLR rolling stock in Spain continues on schedule

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 2027/28	1,161	1,895	3,056	2,994	(62)

Change since last Investment programme report				
12 months later	60	(60)	No change	No change

Financial commentary

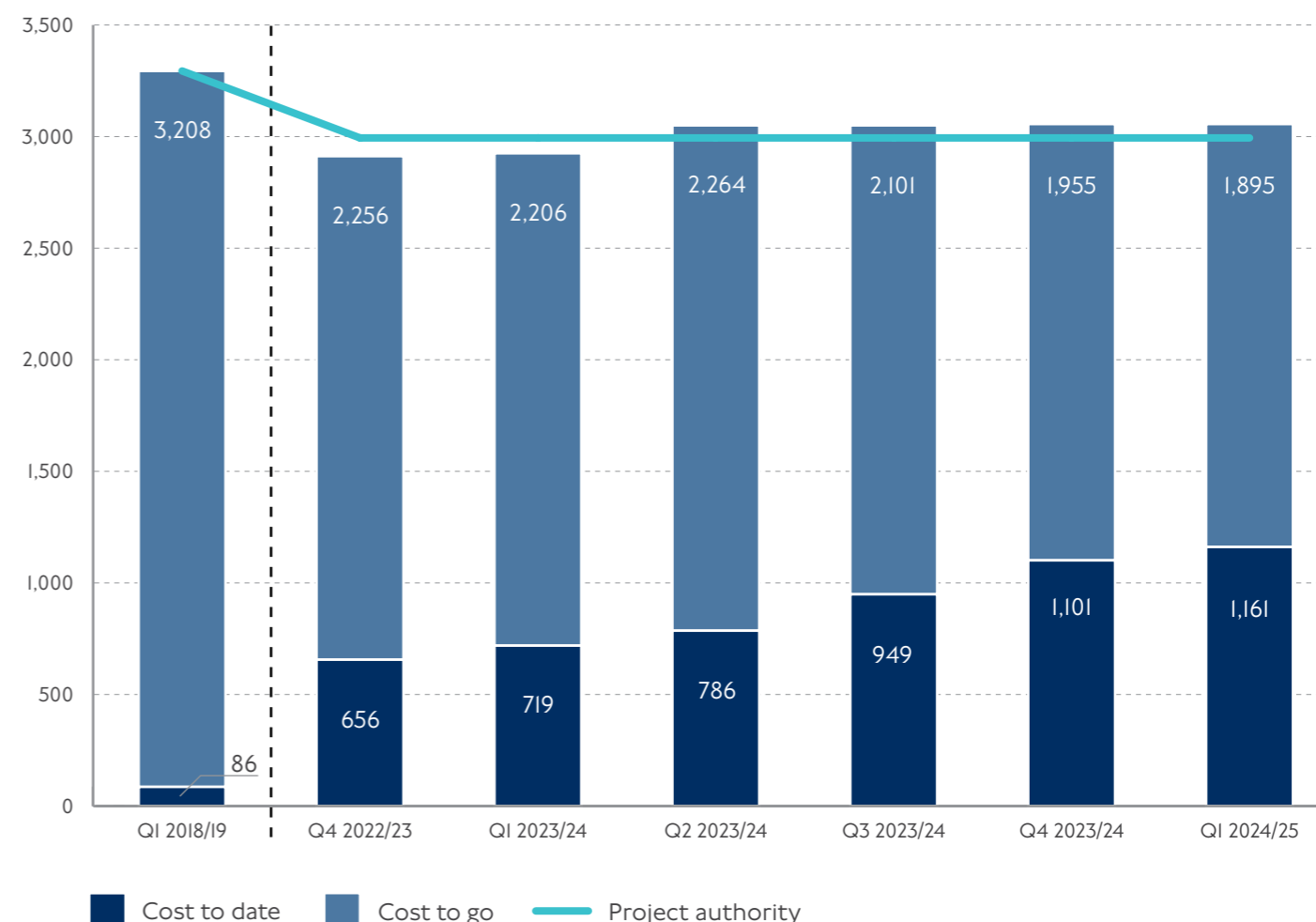
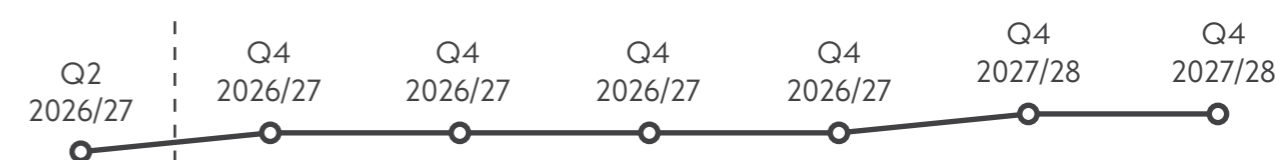
In Quarter 1 2024/25, the EFC has remained unchanged at £3,056m, which exceeds the current Programme and Project Authority of £2,994m. The EFC of £3,056m incorporates the impact of the revised rolling stock delivery schedule as agreed with Siemens, as previously reported at Quarter 4 2023/24.

The revised schedule agreed with Siemens was endorsed at the Finance Committee on 22 December 2023, where it was also confirmed that, despite the train production schedule being extended by 12 months, the first train would still be delivered to London in 2024, entering service in 2025, and the planned timetable frequency increase to 27 trains per hour is still expected to be achieved in 2027/28.

The underlying increase has been partially offset by opportunities identified to reduce costs during a detailed review of the EFC in Quarter 4 2023/24. We have now built on this work and have a plan in place to lower the EFC back to the existing Programme and Project Authority. This will be achieved without compromising programme outcomes and will be embedded in the forecast over the next 12 months, once these opportunities are realised.

Estimated final cost performance over time (£m)

Forecast completion date



* The forecast completion date reflects the achievement of all sponsor key benefit milestones for the programme: (1) first train into passenger service; (2) train replacement is complete, and (3) the peak timetable increase to 27 trains per hour.

All the figures in the table above are shown excluding income and third-party contributions.

Performance over time commentary

As reported to the Programmes and Investment Committee on 5 October 2023, schedule and EFC have been under pressure from several factors, including increases in base costs due to emerging scope in the depot upgrades, industry price increases and indexation. Programme risk and uncertainty provisions have also been increased to reflect schedule risks and the associated impacts.

In December last year, a proposed extended rolling stock manufacturing and testing programme was taken to the Finance Committee for endorsement. This offered TfL value for money and had advantages compared to alternative options of train storage following a number of programme challenges.

The manufacturing and delivery schedule for the new Piccadilly line trains has now been agreed and will be completed 12 months later than previously planned. The schedule remains challenging, but is on target to achieve the key output of a peak service frequency uplift to 27 trains per hour during 2027/28. The first train to enter revenue service remains on track for the end of 2025.

Programme update

The revised profile for train delivery has been incorporated into the programme schedule.

We remain on track to begin system integration testing on the Piccadilly line with the first new train, shortly after its arrival later this year.

As previously reported, the revised delivery profile has enabled Siemens Mobility Ltd to re-configure their supply chains to transfer the majority of the new train assembly to the UK, with around 80 per cent of the new Piccadilly line trains now planned to be assembled at their new facility in Goole, Yorkshire.

Good progress continues to be made on the delivery of infrastructure and system-enabling works to ensure the existing railway will be ready to support the testing of the new train later this year.

Further significant work has been completed to refine the plan for reduction in the EFC for the programme to within the current Programme and Project Authority. We are working with our supply chain partners to drive innovation and identify opportunities to reduce delivery costs further, including creation of value-engineered solutions in key areas.

New trains

The new higher-capacity Siemens trains will be accessible and feature walk-through interiors, saloon air-cooling (for the first time on a Deep Tube train) and all-double doorways to improve boarding and alighting.

Modern audio/visual communication systems will include digital display screens for live customer information and advertising, a new CCTV system for the train operator to view the platform-to-train interface from the driving cab, and improved customer security cameras.

The manufacturing contract with Siemens is progressing well, with the first two fully assembled trains continuing an extensive programme of pre-delivery performance and reliability testing at Siemens' test and validation centre at Wildenrath, Germany.

This has included testing to evaluate the performance of on-board systems under extreme temperature conditions, vehicle sway characteristics and crush-loaded traction and braking performance.

Results to date have been very positive and we expect the new train to fully meet technical specification requirements and performance expectations.

The rephasing of the train delivery schedule and timing of payments agreed under the contract with Siemens have not affected the delivery of the first test train to London, which remains on target. The first new trains have begun assembly at Siemens' new factory in Goole. Siemens is investing up to £200m, creating up to 700 jobs at the factory and 1,700 new jobs in the supply chain.

The Piccadilly line upgrade is a key contributor to our Green strategy and the ambitions and targets of the Mayor's Transport Strategy, the London environment strategy and our Corporate Environment Plan. The withdrawal of the legacy 1973 Tube stock fleet and introduction of new energy-efficient 24 Tube stock trains will enable the progressive introduction of regenerative braking on the Piccadilly line, which will reduce annual traction energy consumption by more than 20 per cent.

Infrastructure is being designed to minimise whole-life carbon and the Piccadilly line upgrade carbon baseline is being updated to reflect the current delivery strategy.

Enabling works

Infrastructure enabling works are progressing in line with the revised delivery strategy, which supports systems integration testing with the new trains and facilitates earliest arrival of new trains at the Cockfosters depot for maintenance familiarisation and staff training. This includes infrastructure clearance and gauging works to enable new train operation.

Extensive use is being made of a programme of planned possessions and closures to minimise disruption and enable co-ordination of infrastructure enabling works with other London Underground programmes to maximise efficiency of access to the railway.

Good progress is being made with the new training platform for the one-person operation closed circuit TV system, with the start of installation works at stations across the line following system software testing and design.

New platform stopping markers are being installed for the new trains at all stations across the Piccadilly line.

Work is progressing on high-voltage power supply upgrades at Northfields and Cockfosters stations to support the increased power loads at the train maintenance depots.

Depots

Modifications are progressing in the existing depots at Northfields and Cockfosters to provide initial maintenance facilities for the first new trains.

The construction of three new stabling and reversing sidings at Northfields is substantially complete, with final commissioning planned for October 2024.

At Cockfosters depot, site preparation and enabling works are underway for the new wheel-lathe facility and a contract has been awarded for building construction.

The first of two new cab simulators is being commissioned in readiness for the start of train operator training and arrangements are being finalised for installation.

Good progress continues to be made on the design-and-delivery planning for the end-state depot facilities, with input from the contractors engaged to provide early contractor involvement, which aims to reduce the schedule and cost to complete both depots.



A Piccadilly line train undergoes maintenance checks at Northfields

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)
Q4 2024/25	127	53	180	176	(4)
Change since last Investment programme report					
No change	2	(2)	No change	No change	

Financial commentary

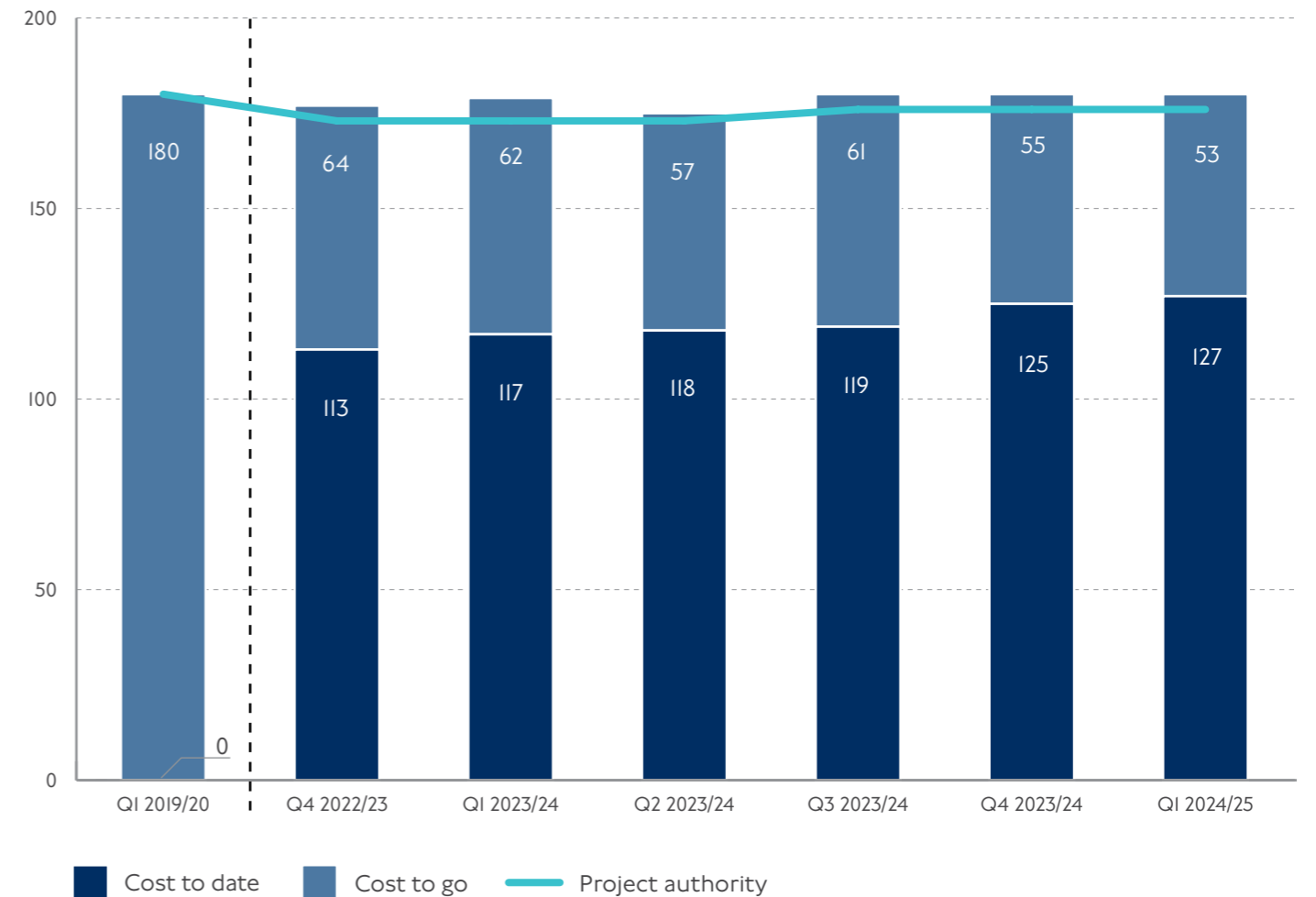
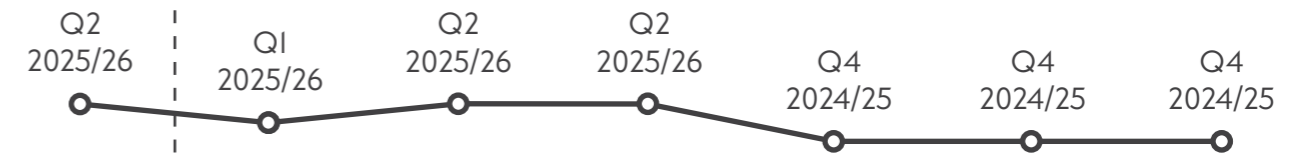
The EFC is currently £4m over Programme and Project Authority due to COVID safe stop and inflation. The project team continues to look for ways to bring the EFC back in line. The forecast permit-to-use date remains in Quarter 4 2024/25.

Performance over time commentary

The forecast end date is when the permit from an independent assessor to use the new Silvertown Tunnel is obtained. Forecast permit to use remains in Quarter 4 2024/25.

Estimated final cost performance over time (£m)

Forecast completion date



All the figures in the table above are shown as inclusive of income and third-party contributions.

Programme update

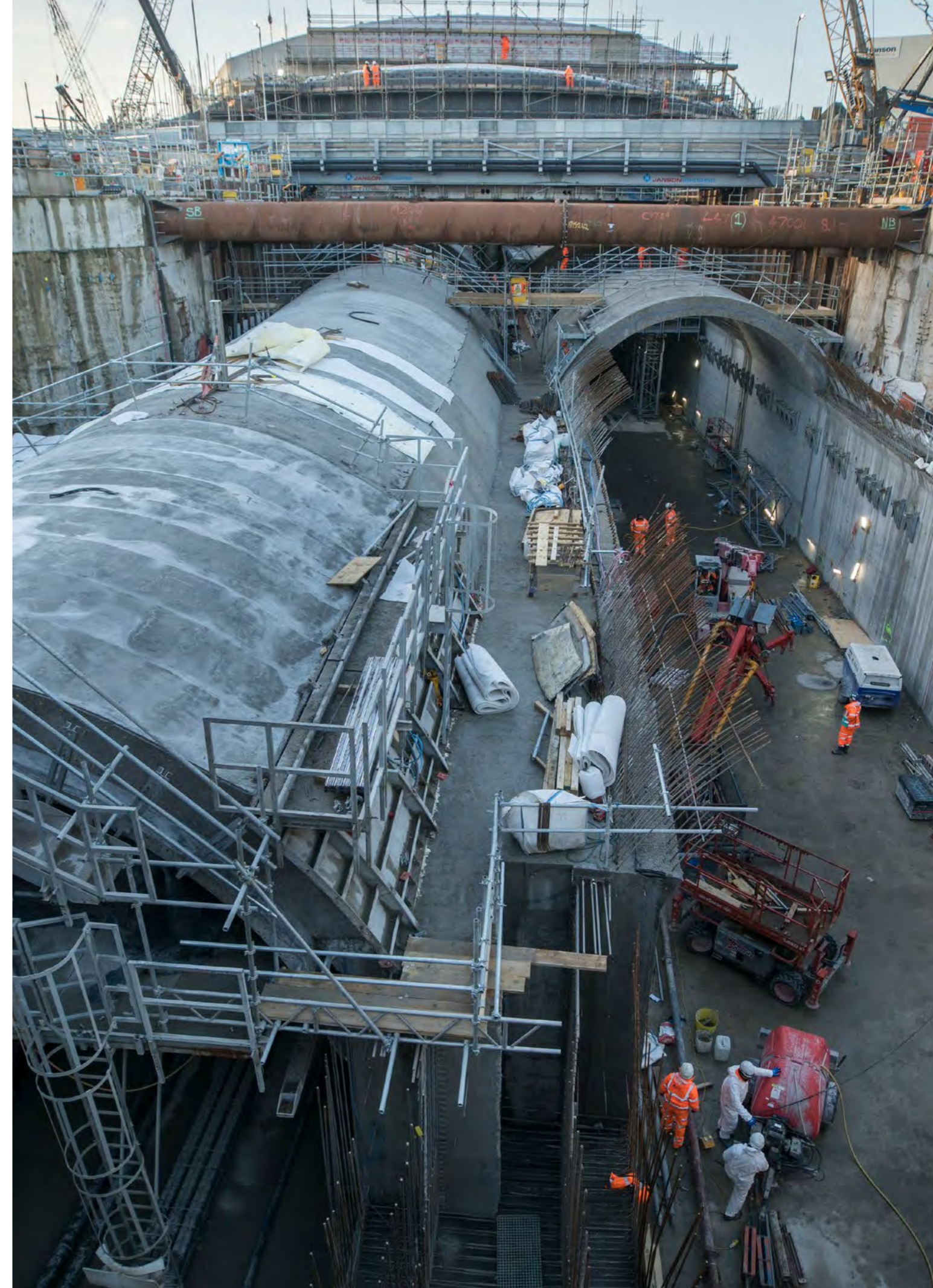
At both Greenwich and Silvertown, backfilling of the cut-and-cover areas has completed and landscaping has begun. The installation of mechanical, electrical and power systems continues within the tunnels. Cable pulling is progressing well and approximately 75km of electrical cable has been fitted over the quarter.

The last quarter has seen several more productive weekend closures of the Blackwall Tunnel to help implement the final road layout for the new Silvertown Tunnel on the A102 road approach. The last gantry was installed in May. Drainage works continue, along with road resurfacing, and safety barrier installation has started. Fit-out works are progressing at both portal buildings, with the scaffolding coming down and final exterior finishes being installed.

Up to the end of May, a cumulative total of 2.5m tonnes of materials and waste have arrived or left the site, of which 1.7m tonnes were delivered or left the site via river transport. By using an average of 17 tonnes per vehicle journey, approximately 104,286 heavy goods vehicle movements were taken off the road.

Planning for the Silvertown Tunnel bus network continues to support the planned increase in the number of buses able to cross the river in this area from five to 21 buses an hour in each direction in the busiest times, from 7am to 7pm, Monday to Friday. All the buses in the Silvertown Tunnel opening bus network will be zero-emission at the tailpipe, which marks a step change in bus accessibility in London, east of Tower Bridge.

An eight-week consultation was launched on 10 July on charge levels, including discounts and exemptions, for the Silvertown and Blackwall tunnels and concluded on 3 September. During the consultation Londoners were able to comment on the proposed tunnel-user charges, discounts and exemptions. This will enable TfL to ensure the user charge and range of discounts, both of which will be subject to approval, have been informed by feedback from the public. It is anticipated that the decision will take place in December 2024.



Work on the tunnel continues, including installation of power systems

Network extensions

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	696	9	705	702	(3)

Change since last Investment programme report					
No change	2	(1)	1	No change	

Financial commentary

The project's EFC remains above the existing Programme and Project Authority due to the challenges around the re-instatement of Arthur Street.

All opportunities for reductions to the EFC are being closely monitored, and the project has been a beneficiary of a Section 106 contribution that was agreed some years ago but only now realised in the sum of £1.6m.

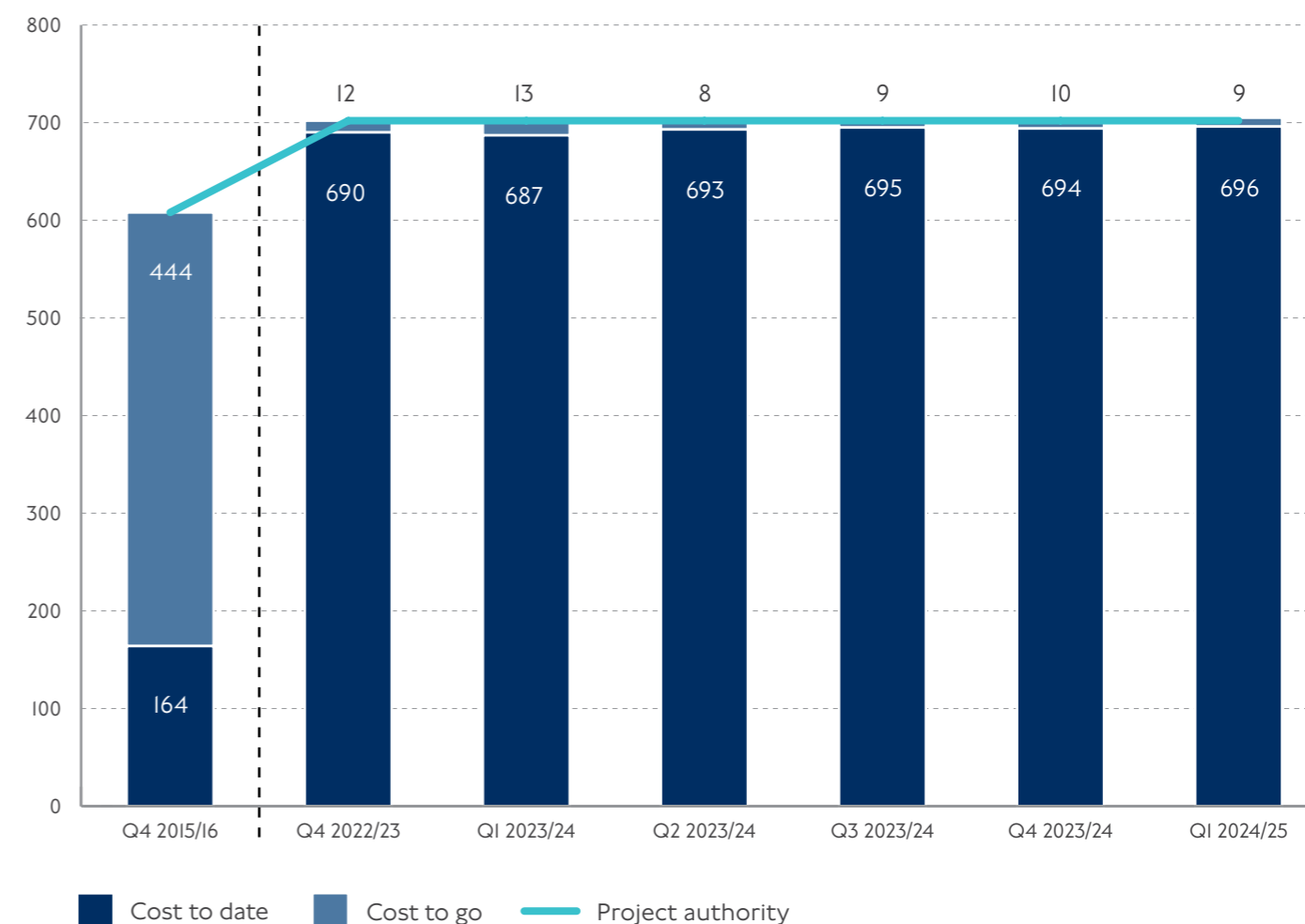
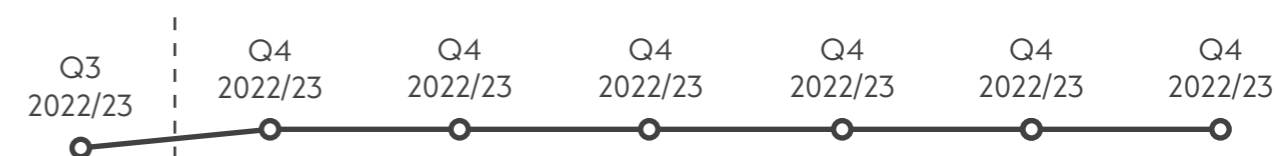
The project is planning to submit a request to the October 2024 meeting of the Programmes and Investment Committee to regularise the authority vs EFC, when we are planning to update the impact of the current impasse with the City of London over the Arthur Street shaft backfill.

Performance over time commentary

The EFC has increased since the Programme and Project Authority award in 2016. This is due to site works being disrupted by the impact of the terrorist attacks at London Bridge, the need for additional scope following the discovery of asbestos, and the impact of the pandemic. Over the last six quarters, EFC has remained stable.

Estimated final cost performance over time (£m)

Forecast completion date



All the figures in the table above are shown excluding income and third-party contributions.



New escalators, moving walkways and lifts have improved access at Bank

Programme update

This complex project has increased the station's capacity by approximately 40 per cent, improved passenger flows and reduced journey times, enhancing 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. There are also more direct routes within the station and a new entrance on Cannon Street.

Recent journey time surveys (April 2024) indicate average journey time savings of up to three minutes for customers interchanging between Northern and DLR platforms, one minute between Central line and Northern line, and five minutes between the Northern line and Cannon Street entrance, when compared to the previous survey undertaken prior to Bank station capacity upgrade works in 2018.

Close-out works continue and the much smaller project team has made significant progress. Outstanding snags now number in single figures (from a total of more than 3,500) and a number of asset groups have been taken over into maintenance, with electrical, mechanical and premises next in line for handover.

For a complex project of this nature and longevity the handover of assets takes time, to ensure comprehensive and accurate information is captured, together with ensuring our suppliers deliver on their obligations.

In other areas, the portable cabins forming the project offices in the whole block site have now been decommissioned and removed safely, and this site has now been handed over to Places for London for the over-site development to begin, so that the projects' involvement at this location has ceased.

Other progress has seen the team successfully navigating the complex pipe subway technical challenges to the gas extract system, with the design of the replacement now accepted. The section of the station known as Bullring exit 4 has been re-opened to the public.

Rail and station enhancements

This programme brings together several key enhancement programmes to create a single focus for an improved transport network



Rail and station enhancements

Forecast period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and Project Authority (£m)	Variance: Forecast cost v authority (£m)
2022/23 to 2025/26	153	167	320	1,036	716
Change since last Investment programme report					
No change	20	(15)	5	No change	

Financial commentary

The Programme and Project Authority of £1,036m also reflects spend outside of the review period, prior to 2022/23 and beyond 2026/27, and remains unchanged for the reported period.

The forecast between 2022/23 and 2025/26 has increased by £5m. The increase is predominantly driven by the transfer of funding into the programme for step-free access schemes. In addition, there is a cost increase of £1.6m on Colindale station development for the additional bus replacement services provided during station closures to manage displaced customer demand. Also, the East London line Housing Infrastructure Fund programme reflects £3.8m acceleration of contractor delivery for Surrey Quays main works and realisation of risk materialising against the signalling workstream.

All the figures in the table above are shown excluding income and third-party contributions.

These increases are offset by a £3m reduction in the period due to re-phasing of the estimated tunnelling expenditure and associated risk for the Elephant & Castle station upgrade project costs into 2026/27.

Performance over time commentary

The total cost shows little movement from the previous quarter but there has been good progress in converting the £20m of cost to go into spend to date when compared with Quarter 4 2023/24. Some delays have resulted in delivery moving into Quarter 2 2024/25 and later years.

High Speed 2 (HS2)

The then Government's Network North announcement in October 2023 significantly scaled back the project north of Birmingham and has led to a review of Euston station design and funding arrangements. In December 2023, the former Government issued the Strategic Design Authority (SDA) letter to HS2 concerning Euston, and we have continued to engage collaboratively with them and other Euston Partnership members

including Network Rail, Department for Transport (DfT) and Lendlease, the masterplan development partner, in understanding the impacts of this change on us, our operations, passengers and London.

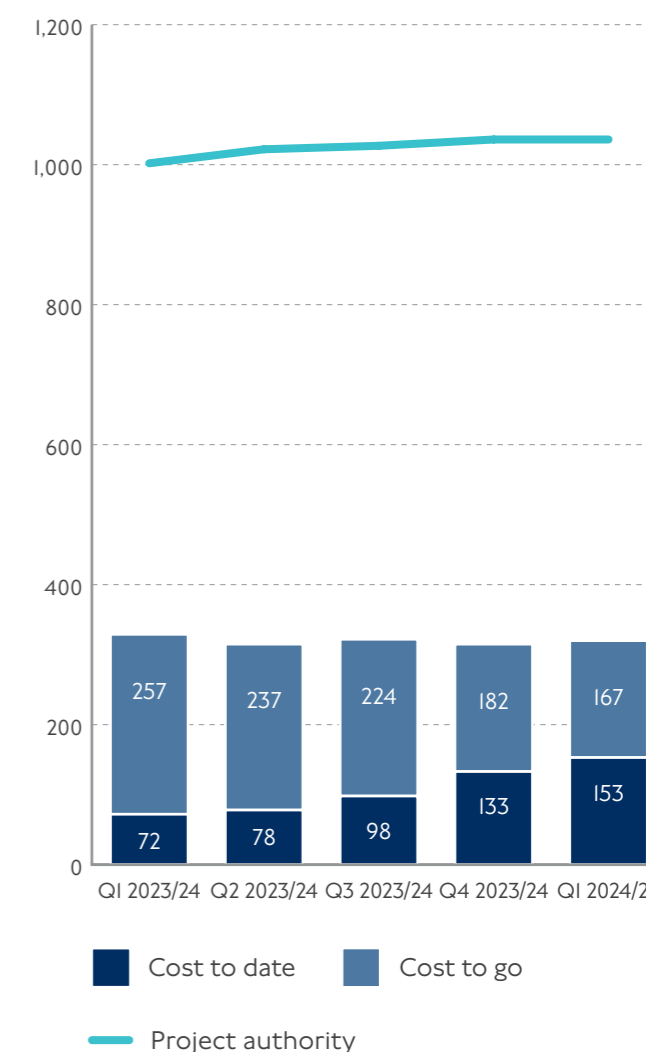
In April 2024, the Euston Partnership issued its combined response to the SDA letter to the DfT, with our comments included in the HS2 component. We continue to engage with the DfT and other partners to recognise the importance of TfL being a full partner in the review process.

We have continued to work with HS2 and their contractors on the fit-out of the traction sub-station at Euston. We have raised some concerns with HS2 regarding the handover process to be followed, and we have expressed a lack of confidence in their programme. HS2 have given assurances they will engage the necessary resources to deliver the power migration by early November. We have since increased our own resources accordingly to support their programme.

Since April 2024, there has been an increase in traffic congestion along the A40 corridor, partly caused by multiple HS2 worksites. We are working closely with HS2 Ltd and its contractors to minimise the impact of the disruptions and increase communications to road users.

Environmental requirements and carbon reduction targets for new or altered assets have been incorporated into the functional requirements and have been cascaded to the HS2 Ltd supply chain.

Rail and station enhancements performance over time (£m)



In conjunction with the Old Oak and Park Royal Development Corporation and Network Rail, we have made the case to the DfT for more strategic modelling at Old Oak Common for the surface intermodal area and highways connections, given that Old Oak Common will become a temporary terminus for HS2 services for up to a decade. This will also need to consider the longer-term demand that will arise from the significant residential and commercial development planned for the area. The DfT announced in June that it has approved the procurement of 10 additional Class 345 Elizabeth line trains to ensure sufficient capacity for passengers boarding and alighting from HS2 services at Old Oak Common who wish to continue their journeys to and from central London.

There has been some progress in relation to the provision of level boarding for Elizabeth line rolling stock at Old Oak Common, with a feasibility study underway to investigate the lowering of tracks. This study will conclude by early September. We continue to actively engage with HS2 Ltd and Network Rail on this proposal.

Elephant & Castle

A new station entrance and Northern line ticket hall will support the creation of 5,000 new homes and 10,000 new jobs in the area around Elephant & Castle station. This new entrance will significantly increase the station's capacity to meet both existing and new demand for Tube services, as well as delivering vital step-free access to both Northern line platforms.

Procurement arrangements for the new passenger connecting tunnels between the new station box and the existing Northern line platforms continue in readiness for award in Quarter 2 2024/5. Our environmental requirements have been incorporated into the contract documents. As a precursor to the main tunnelling works, the pre-tunnelling ancillary works have been completed, and with all high-voltage cables delivered to site in readiness for future renewals. These works allow the main contractor to focus on tunnelling activities, without the added complications of relocating services or needing to strengthen existing platforms.

All these works, plus the station box, are known as Stage 1 works and are fully third-party funded. Construction of the station box continues, with excavation to deep basement levels making progress. The developer is planning to hand over the station box by Quarter 1 2025/26, as agreed, and are making good progress.

Options have matured for the fit-out of the station box and tunnels, including bringing the new station entrance into use, known as Stage 2, subject to funding approval.

The team are currently finalising scope and estimates for the minimal viable product for fit-out.

Battersea Power Station western entrance

The Battersea Power Station western entrance project is fitting out a second entrance to the station, including providing additional step-free access.

Since 2022, funding has been secured and a funding and development agreement between us and Battersea Power Station Development Company has been entered into to facilitate the delivery of the Western entrance project, including an integrated construction and design team. Most recently, the project has begun the installation of the two new escalators, and site mobilisation is underway for the lift installation. The project is still on track to complete in spring 2025.

East London line enhancement programme

We are making a series of improvements to the East London line (which will become the Windrush line later this year) on the London Overground, enabling us to increase train frequencies and support growth and regeneration in the local area. These works are fully third-party funded.

Surrey Quays station upgrade

Our upgrades to Surrey Quays station are progressing well. Piling works on platform 1 are now complete and installation of the station superstructure on platform 2 has begun. Construction works are progressing safely under interim Network Rail assurance governance as we finalise technical design elements.

We brought the temporary secondary means of escape on platform 1 into service in August 2024 to support the installation of the overbridge linking the two platforms in early 2025. Works remain on track to complete in 2026.

Power reinforcement

Network Rail is making good progress on project delivery relating to their assets and remain on target to complete power upgrade works in November 2024. Works on TfL infrastructure were commissioned in June 2024, and we will now proceed to formally close this element of the programme's scope.

Signalling enhancements

Works undertaken during the 2024 Easter blockade were successful, enabling us to continue to deliver the platform extension at Surrey Quays station. Line-side equipment installation is largely complete and supplier design with Siemens is ongoing.

Tram replacement rolling stock

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 across our fleets.

A standard selection questionnaire was issued to the market on 3 January 2024, which attracted significant interest from rolling-stock manufacturers, with responses received in April 2024. Since then, the evaluation and moderation has been completed. The invitation to tender was issued on 5 September and bids will return from the market in spring 2025.

Design development for the depot and power interventions are ongoing.

DLR Thames Wharf

Feasibility-level design and initial value engineering work have now concluded for a new station at Thames Wharf in the Royal Docks area, in line with the revised masterplan for the Thameside West development. We are in discussions with the developer for the Thameside West residential development on progression of the station design for Thames Wharf.

DLR Royal Docks

The Royal Docks station upgrade programme, funded by the GLA, is aligned with the emerging aspirations of the Royal Docks and Beckton Riverside Opportunity Area Planning Framework. This framework aims to improve accessibility and reduce congestion to enable an additional 3,000 homes to be built in the area.

At present, the upgrade to Pontoon Dock station is the only live project within the programme. Our plans for the station involve providing new escalators to platform level, lift refurbishment and improvements to the urban realm beneath the elevated station.

We have completed the concept design and submitted a formal planning application to the London Borough of Newham on 28 March 2024. We are now preparing to procure the contract for the detailed design-and-build phase, while we continue to work with the GLA and other third parties to secure a full funding package.

London Underground

The London Underground enhancements and station developments projects cover a range of improvements, 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.

Throughout Quarter 1 good progress has been made across the programme, most notably at Colindale station where the six-month station closure has started as planned, supported by a series of successfully delivered track closures. In addition, physical works for the new station entrance have concluded at Stratford ahead of opening, the detailed design of Leyton draws to a conclusion, and the update of the detailed design at Northolt progresses. The total number of London Underground stations with funding in place for the next stage of design is now five and a further seven will be assessed for feasibility in the step-free access programme.

Colindale

The scheme involves the reconstruction of the ticket hall building above the tracks to provide increased capacity and step-free access and enable the future redevelopment of TfL-owned land for residential use.

The main site works are progressing well, with the canopy, overbridge and staircases being removed and hoardings installed along the platform edge following the start of a closure of the station on 7 June 2024. A key structural wall has been built to the east of the southbound tracks and the majority of piles installed behind the west retaining wall. Preparations are being made for the installation of steelwork to support the new ticket hall deck. The station is due to reopen in a temporary state in December 2024.



The second entrance at Battersea will offer additional step-free access

Knightsbridge

The project is working to resolve power capacity issues to meet the requirement for a secondary power supply to the new lifts.

We are working with the contractors to optimise the associated delivery schedule – which will include rigorous testing to ensure the new lifts can safely enter service – before confirming a revised opening date for the new dedicated step-free entrance.

Leyton

The scheme involves the creation of a new ticket hall to provide increased capacity and step-free access by means of an overbridge and lifts. These works will support the many thousands of new dwellings being built in the area.

The detailed design of the scheme is close to being finalised. The construction contract will be let later in 2024. We continue to work closely with key funders including the London Borough of Waltham Forest.

Paddington – Bakerloo line

We are making progress on the project to deliver a new step-free ticket hall to the Bakerloo line, which is due to open in autumn 2024. Installation of cabling, services and finishes for the new ticket hall are ongoing.

South Kensington

We are working with Places for London and their joint venture partner on the business case for an integrated redevelopment of the station and surrounding properties to secure much-needed step-free access to the Circle and District line platforms, capacity improvements and income from the TfL estate.

Work is underway to develop the concept design for the station upgrade works, with good progress being made in confirming project requirements. The scope includes an extension of the ticket hall, the construction of a new eastbound Circle and District line platform and the installation of lifts between both District and Circle line platforms and street, ticket hall and museum subway levels. This design work will also include an option for the installation of lifts to serve the Piccadilly line platforms, as part of TfL's wider aspiration to make the station fully step-free once sufficient funding becomes available. Once complete, the design work will provide a fuller understanding of the costs and required programme of works to inform the business case, the funding position and next steps.

Step-free access

In summer 2023, we announced 10 stations where we were carrying out studies of the feasibility of making them step-free. In February 2024 we announced work was to start at Northolt Underground station on the Central line to make it step-free, and that design work will start at North Acton (Central line) and West Hampstead (Jubilee line).

A further three stations – Alperton, Arnos Grove and Eastcote – have now been selected for progression to concept design.

The initial phase also included a pre-feasibility study of all the stations at the southern end of the Northern line. Two of these stations (Colliers Wood and Tooting Broadway) have been selected to progress to a full feasibility study, based on their deliverability and benefits.

In addition, a further five stations have been identified for feasibility studies during the current financial year, based on the further development of the prioritisation process, which considers benefits to users alongside costs and funding sources. This has been used to assess all 180 Underground stations that are not currently step-free. The five stations for feasibility are Croxley, East Finchley, Neasden, Northwood and Turnham Green. We also continue to work to update the detailed design of Northolt, ahead of a planned start for construction work in early 2025.

We continue to actively engage with local authorities, developers and businesses to explore the options available to introduce further step-free access at stations. Feasibility work at other stations could be progressed, should investment be provided by these organisations.

Stratford

Work on the new urban realm leading to the new southwestern entrance and ticket hall is nearing completion while the planned opening of the entrance was achieved on 10 July 2024.

The project continues to liaise with Network Rail, which is working to deliver a new customer lift connecting the Jubilee line concourse to the western subway.

West Ham

We are working with a third-party developer, Berkeley Homes, to build 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, which are being funded and delivered by the developer, started in summer 2022. We have been responsible for setting the requirements, approving the design and managing the interface with internal parties and contractors.

Discussions are ongoing with Berkeley Homes regarding how certain elements of the wider scope will be progressed and delivery options are being reviewed. It is anticipated that the works will begin on site later this year.

King's Cross St. Pancras Belgrove House

We are working with a third-party developer, Belgrove House properties limited, to build a new step-free station entrance on the south side of Euston Road. Works entail removal of existing stair boxes and construction of a new entrance within a new building. The new entrance will have a lift and stair access to the existing subway under Euston Road.

Site works with the London Underground interface started in July, with the main works beginning in October 2024, and the new entrance in use in 2026.

Safe and healthy streets

This programme brings together bus enhancement and healthy streets projects to create a single focus for investment in healthy streets and enhancements for bus users



Safe and healthy streets

Forecast period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and Project Authority (£m)	Variance: Forecast cost v authority (£m)
2022/23 to 2025/26	335	342	677	588	(89)
Change since last Investment programme report					
No change	30	(42)	(12)	No change	

Financial commentary

We plan to continue to invest in Safe and healthy streets at an average of £150m per year, after third-party income. This is consistent with our investment under the funding settlements over the period 2022/23 and 2023/24.

Spend in Quarter 1 2024/25 was £30m, against a budget of £37m, with the reduction due primarily to delays on agreeing funding arrangements on certain projects and the impact of spend that was budgeted in 2024/25 but accelerated into last year.

A detailed review of the deliverability of our forecast this financial year during this Quarter highlighted risks to our plans for the year, including delays to external funding, other road users such as the utility companies having priority over road space and continuing cost increases. We are currently working through the mitigations of these risks and will update the Programmes and Investment Committee in Quarter 2.

Performance over time commentary

Programme investment continued at a slower pace than in Quarter 4 2023/24, as expected in the budget, but is forecast to accelerate over the year as more schemes enter the construction phase. We expect to return to the Programmes and Investment Committee in the second half of the year to request further authority to meet our costs to go.

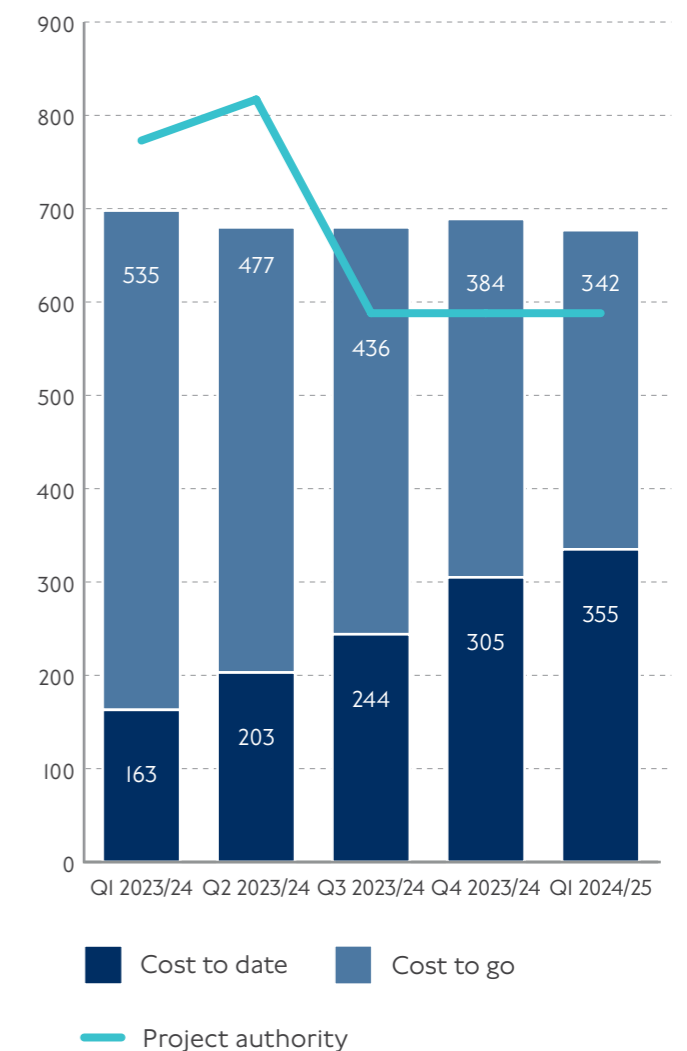
Programme update

Output targets for 2024/25 have been established across a number of Safe and healthy streets programmes, including delivery of 30km of new cycleways, 15 new signalised pedestrian crossings on our road network, and 15km of new bus lanes. We are also working to meet the floor target of 5,000 square metres of sustainable urban drainage, including options for acceleration towards a stretch target of 9,000 square metres.

In collaboration with borough partners in the Local Implementation Plan (LIP) working group, new LIP guidance for boroughs was issued in July 2024. In recent years we have gradually strengthened the guidance to improve the quality and impact of schemes funded and delivered.

The proposed new guidance for 2025-28 ensures Borough Safer Corridors and Neighbourhoods funding is allocated to the most impactful scheme types (speed limits, safer junctions, traffic reduction schemes, school streets, safer high streets and pedestrian crossings).

Safe and healthy streets performance over time (£m)



All the figures in the table above are shown excluding income and third-party contributions.

Cycling infrastructure

Cycleway 4 London Bridge to Greenwich

The London Borough of Southwark completed their works to construct the temporary scheme for Lower Road between Rotherhithe roundabout and Surrey Quays Road on 4 March, completing the final section of a protected cycling route between London Bridge and New Charlton. Snagging works were completed on 11 August 2024.

Cycleway 9 East Kensington Olympia to Brentford

The London Borough of Hounslow's works to deliver with-flow cycle tracks from Watermans Park to Brentford Magistrates' Court are substantially complete. Carriageway and cycleway resurfacing began on 1 July and the majority of works were completed. The cycle track opened on 7 August 2024.

Cycleway 9 West Hounslow to Brentford

We began consultation on our proposals to deliver protected cycle tracks between Brentford and Hounslow High Street on 15 July as planned. This section of the route is proposed to connect with cycle tracks currently under construction between Watermans Park and Brentford Magistrates' Court.

Cycleway 23 Lea Bridge to Dalston

Construction of segregated cycleways around Lea Bridge roundabout was completed on 26 January, and snagging completed in late August. Construction of Lea Bridge Road started as planned on 24 July 2023 and is being delivered by the London Borough of Hackney.

Cycleway 50 Finsbury Park to Tottenham Hale

Construction of the section on our roads from Caledonian Road to Finsbury Park was completed on 8 January, with snagging work completed in April. Consultation and monitoring of the changes we have made began on 22 May, while the scheme is in operation under an experimental traffic order.

Park Lane

Work to improve the efficiency of several junctions along the Park Lane cycleway and widen some pedestrian and cycle crossings began on 10 June to improve cycle access between Park Lane and Mayfair.

Vision Zero

Lowering speed limits

Lowering the speed of vehicles in London is key to reducing both the likelihood of a collision and the severity of the outcome. The second phase of the programme is complete, with a 20mph speed limit now in operation on 264km of our roads against the Vision Zero action plan progress report target of 220km.

In Quarter 1, we lowered the speed limit on the A406 North Circular Road in Waltham Forest and Enfield from 50mph to 40mph. The new speed limit came into operation on 29 July.

In August, we began installing banners mounted on lamp columns across corridors delivered in March to help maintain driver awareness of the new 20mph speed limit. We anticipate this work will be complete by the end of September.

Outcome definition work is taking place to identify where complementary speed-reducing features such as green infrastructure, lane reallocation and raised crossing points can be installed to provide a self-enforcing speed limit where it has recently been introduced, in line with DfT guidance on setting speed limits.

Safer Junctions programme

Further design and survey work continues at pace on the Battersea Bridge Safer Junction project, with construction due to start in Quarter 3 2024/25 in the London Borough of Wandsworth.

Design and outcome planning work continues on the remaining junctions covered by the programme. We have a target to complete public consultation and engagement on 10 of these locations by the end of 2024.

Public consultation on safety improvements at Hogarth roundabout in Hounslow started on 11 July and is due to finish on 12 September 2024.

Detailed traffic modelling is underway on the Monument Safer Junction, and we are currently undertaking early engagement with statutory stakeholders ahead of further public consultation in Quarter 3 2024/25.

Design and outcome planning work continues on the remaining junctions covered by the programme. We have a target to complete public consultation and engagement on 10 of these locations by the end of 2024.

Pedestrian safety

Design work continues on more than 40 projects across London, at locations where there is an identified road safety concern.

Construction was completed on 8 August 2024 on the A23 Brixton Hill near the junction with St Saviours Road, introducing a new signalised pedestrian crossing at a location with a poor safety record and an identified pedestrian desire line.

Detailed design work continues at locations where we plan to deliver road safety schemes later this financial year, including at Redcliffe Gardens in Kensington and Chelsea, King's Cross Road junction with Pentonville Road in Camden, A23 Streatham High Road at the junction with Gracefield Gardens in Lambeth and on the A20 Amersham Road junction with Parkfield Road in Lewisham.

Public engagement on safety improvements at the junction of A503 Seven Sisters Road and Wilberforce Road ended on 25 July, with plans to implement an improved cycle crossing into Finsbury Park as well as improvements to a nearby pedestrian crossing in 2025/26.

Bus priority

We continue delivery of new bus lanes, working together with London boroughs towards a target of 25km by the end of March 2025. In Quarter 4 2023/24 we achieved our milestone to introduce 10km of new bus lanes on borough and our roads, delivering 10.06km.

In Quarter 1 2024/25, we introduced an additional 0.75km of new bus lane, taking our total to 10.84km. This delivery included the completion of Lower Clapton Road as well as four borough-led projects in Brent, Hackney and Hounslow.

In May we began a public consultation on our Safe and healthy streets proposals for A297 St Helier Avenue in Merton, including 1.6km of new bus lanes, two new pedestrian crossings, a new sustainable urban drainage system to help mitigate flood risks, and footway widening. In July, we launched a public consultation on our proposals for a new bus lane on A20 Lee High Road. The bus priority measures for both projects are due to be delivered by April 2025.

Signal timing reviews have been completed at a total of 46 sites since April to provide additional priority for buses, working towards a target of 400 sites for the year. Since the beginning of 2024/25, this work has saved nearly 2,500 bus passenger hours. Two-thirds of buses in London approaching traffic signals either arrive on a green signal or receive some form of bus priority.

In 2024/25, more than £10m of funding has been allocated to London boroughs to deliver enhanced bus priority on their local road networks. As well as new bus lanes, this investment will deliver other bus priority features such as the removal of pinch-points, kerbside activity rationalisation and improvements to bus lane operating hours.

We have identified a suite of activities to improve bus priority across the nine recently launched Superloop routes. Improvements include traffic signal upgrades, new and improved bus lanes and removing pinch-points. In some locations, a holistic corridor-based investigation is being progressed to focus on end-to-end bus priority.

Transformational schemes

Catford town centre

We entered into an agreement with the London Borough of Lewisham in February and are working with them to support their ambition to create a greener town centre for Catford, ensuring it is a pleasant place to live, work and visit, and improve transport in the area.

The concept design is progressing well: we submitted a planning application for the scheme in December 2023 and made a compulsory purchase order for the land required in January 2024. A public inquiry will take place on 2 and 3 October 2024. An agreement in principle has been reached with one of the key landowners and agreements are being progressed to acquire the land without the need for the compulsory purchase order.

To fund this scheme, we are also applying for funding through the DfT's Major Road Network fund. The business case was considered at the DfT Roads Investment Committee on 22 May. We have been chasing and are waiting on an update on the progress of the scheme to HM Treasury following the General Election on 4 July, however the backlog, together with the strategy of the new administration, has delayed the scheme getting to the Finance Committee for review.

Lambeth Bridge

Following completion of the detailed design, the project received its internal assurance approvals. On 4 September, BT completed their enabling works at the northern roundabout and TfL's contractors started the main works for the project on 17 September 2024.

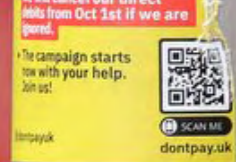
Our advance works to remove the northern roundabout completed on 13 June and BT started their utility works on 4 July, aiming to complete all of their work by 6 September 2024 to allow the main scheme to begin on 9 September 2024, with the removal of the southern roundabout and associated works running through until Christmas 2024.

Borough funding

Safer corridors and neighbourhoods is the largest of our LIP programmes that enables all 33 boroughs to deliver a holistic range of Healthy Streets improvements across their borough. Over the course of the year, boroughs progressed and completed around 600 Safe and healthy streets schemes funded through the programme. These include walking, cycling, safety and bus schemes delivering a range of active travel and safety benefits on borough roads. The core measures introduced include new Low Traffic Neighbourhoods, school streets, pedestrian crossings, junction safety improvements, 20mph limits, cycle parking, cycle training and bus stop accessibility upgrades.

Boroughs are currently delivering the last year of their current three-year delivery plans and new guidance has been issued to help boroughs shape their LIP delivery plans for the three financial years from April 2025 to March 2028. The guidance has been developed in partnership with the LIP working group, which is made up of borough representatives from each sub-region, the London Technical Advisers Group, and the London Environment Directors Network, as well as London Councils and TfL.

To improve road safety on borough roads and deliver bus journey time improvements TfL has made an additional £80m of funding available to the boroughs. Boroughs can apply for scheme funding through the new Borough Safer Streets and the Better Bus Partnership programmes.



More than 300 countdown signs give customers the latest information

Bus safety

As of early August 2024, there are more than 1,500 buses in the fleet that meet either the 2019 or 2021 Bus Safety Standard (depending on the point at which they entered service). This means 45 per cent of the bus fleet now have intelligent speed assistance (ISA) units, which automatically restricts bus speeds to local limits. The first new vehicles that meet the new 2024 requirements are now entering the fleet, which include optimised front-end geometry and enhanced interior measures to protect passengers. Meanwhile, we continue to research and trial potential features for inclusion in the Standard in 2027 and beyond.

Working with our bus operators, vehicle manufacturers and their suppliers, we have now agreed retrofit works on more than 2,600 buses. Throughout 2024/25 key safety features will be installed on older vehicles that entered the fleet prior to the Bus Safety Standard coming into effect – and include ISA units and camera monitoring systems, which replace wing mirrors with high-performance cameras to improve driver visibility and reduce blind spots.

Fatigue detection technology is being fitted on up to 500 buses. Data from this project is expected to identify the true scale of fatigue in bus operations, which will be analysed by locations, rosters, routes and vehicles. The results will enable us to address the factors causing fatigue and mitigate their impact early on. Drivers at risk of fatigue will be offered support by their managers, who have received additional training, as well as the opportunity to understand the impact of fatigue on collisions on the network.

Bus customer action plan

We published our plan in March 2022, which outlines how we will build and broaden the appeal of the bus service. This includes delivering a step-change in customers' perceptions and experiences of bus travel, which can be achieved through offering better information and meeting expectations of a modern and comfortable experience at bus stops and on buses.

Following the success of our trial on Route 63, where we introduced a coordinated package of enhancements to both the vehicles and bus stop waiting areas, we have applied these customer features to a further 433 buses across 29 routes. This includes richer on-bus content displays with more detailed customer information, USB charging points, priority seat demarcation and enhanced lighting.

We have rolled out more than 300 new countdown signs at bus stops across the capital, with all boroughs benefitting from enhanced live travel information. We have also renewed more than 400 bus shelters.

In 2023 and early 2024, we also improved wayfinding information, to include points of interest on 6,900 bus shelters, and delivered enhanced bus signage at 14 multi-exit London Underground stations and 11 single-exit Elizabeth line stations, to support customers with interchanging and navigating the network.

We continued to deliver trials to address customer pain-points, including enhanced on-bus cleaning to improve passenger experience.

Environment

This programme comprises environmental projects and includes the new green project pipeline that is being developed



Environment

Forecast period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and Project Authority (£m)	Variance: Forecast cost v authority (£m)
2022/23 to 2025/26	417	171	588	1,025	437

Change since last Investment programme report					
No change	33	(74)	(41)	No change	

Financial commentary

We invested a further £33m in our Environment programme during the quarter. This was mainly related to the Ultra Low Emission Zone (ULEZ) scrappage scheme and our road user charging programmes.

As demand for the scrappage scheme starts to tail off after intense activity last year, our investment will be focused on continuing to update our existing road user charging systems to include tunnel-user charging, reletting existing contracts, developing in house capabilities and supporting the Mayor's goal for making London a net zero city by 2030.

Performance over time commentary

Programme and Project Authority covers years which are outside the period in the table above.

Many of our projects, such as decarbonising our assets and operations, are in the development stage, and costs and funding continue to be subject to review to ensure they deliver value for money while also meeting our non-financial objectives.

We will continue to explore additional funding sources, both internal and external, to deliver our full net zero ambitions.

London-wide ULEZ

On 29 August 2023, the ULEZ was expanded to cover all London boroughs. A report published on 25 July 2024, showed that in the six months of operation vehicle compliance in outer London increased by five percentage points – from 91 per cent in June 2023, to 96 per cent. This is nearly the same level of compliance as seen in inner and central London, with 96.5 per cent and 96.4 per cent, respectively. In addition, in February 2024, the number of non-compliant vehicles seen driving in London on an average day had decreased by 90,000 compared to June 2023, a reduction of 53 per cent. Regarding emissions, pollutants across London in 2023 are dramatically

lower than would have been expected if we hadn't expanded the ULEZ London-wide. Nitrogen oxide emissions from cars and vans in outer London are estimated to be 13 per cent and seven per cent lower compared to a scenario without the ULEZ, while particulate matter exhaust emissions from cars and vans in outer London are estimated to be 20 per cent lower than they would have been, had we not expanded ULEZ to outer London.

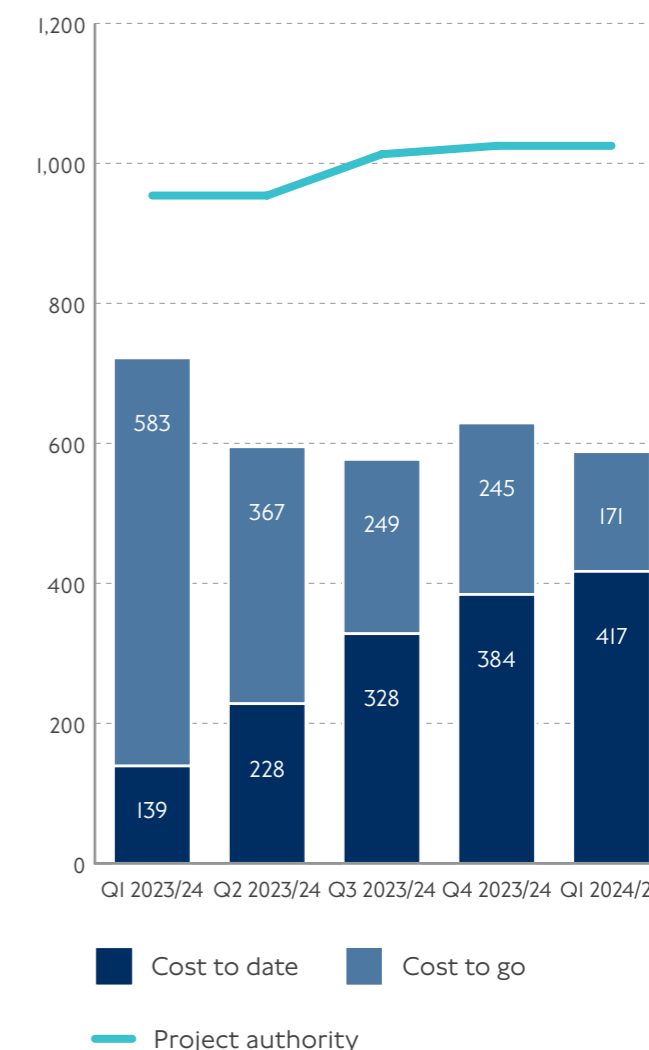
Since 30 January 2023, the largest vehicle scrappage and support scheme of its kind in the UK has been available to assist Londoners with vehicles that do not comply with ULEZ emissions standards. Up to 26 May 2024, more 50,000 applications had been approved, which equates to almost £180 million of support committed for eligible Londoners.

In March 2024, the option to donate suitable vehicles to Ukraine was added to the scheme. A trusted intermediary, British Ukrainian Aid, has supported the transfer of 409 vehicles to Ukraine to be used for humanitarian purposes.

We have installed an extensive camera network to support the effective operation of the scheme. Up to 21 June 2024, we had more than 3,500 cameras enforcing road user charging schemes in London.

Unfortunately, vandalism of ULEZ cameras has continued in Quarter I. All incidents are reported to the police. Several individuals have been arrested and charged, and one convicted. We are working closely with our contractors and the police. Where necessary, cameras are repaired or replaced.

Environment performance over time (£m)



All the figures in the table above are shown excluding income and third-party contributions.

Direct Vision Standard phase 2

Since March 2021, all heavy-goods vehicles (HGVs) over 12 tonnes are required to obtain a safety permit to operate in London as part of the London HGV safety permit scheme. This scheme contributes to the Mayor's Vision Zero strategy by improving HGV drivers' visibility, thereby reducing the risks HGVs present to vulnerable road users. It is run in partnership with the boroughs through London Councils. Vehicles that do not meet the minimum one star on the Direct Vision Standard rating, introduced in 2019, are required to fit additional 'safe system' measures to the vehicle. Since March 2021, the scheme has been enforced by a penalty charge notice.

From 28 October 2024, HGVs will need to have at least a three-star rating for Direct Vision Standard or fit additional safety measures known as the Progressive Safe System (PSS), to operate in London. Applications for HGV safety permits under PSS conditions opened on 24 June 2024. Operators who think they will need more time to install the PSS can apply for a grace period. This was originally expected to run for three months from 28 October 2024 to 31 January 2025. However, following an update on industry readiness to London Councils on 18 July 2024, it was agreed to extend the grace period by a further three months, to 4 May 2025.

These changes will build on safety improvements from the current scheme which, using a baseline of 2017-2019 (averaged), has seen a 49 per cent reduction in the number of fatal collisions, and a 30 per cent decrease in serious collisions involving an HGV and those who walk, cycle and motorcycle.

Electric vehicle infrastructure delivery

London is expected to need between 40,000 and 60,000 electric vehicle charging points by 2030, including up to 4,000 rapid chargers. Estimates show that a quarter of these could be accommodated on public sector land. 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 rollout 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 programme aims to provide rapid and ultra-rapid charging points across 100 parking bays on our roads. Charge-point operator Zest was contracted for an initial batch of charging bays in May 2023, and two further batches in November 2023.

We have completed a preliminary assessment of more than 2,400 sites across the GLA estate, which has allowed us to accelerate the release of further batches to the market, with the latest batch released on 7 June 2024. In addition, we are working with GLA property to assess four sites, which could unlock GLA land for public electric vehicle charging.

In addition to the rollout of rapid electric vehicle charging points, the Office for Zero Emission Vehicles has recently announced that London will receive almost £39m of funding through the DfT's Local Electric Vehicle Infrastructure (LEVI) fund. This will primarily be used to accelerate the delivery of low-powered charging infrastructure on borough highways. This includes residents without access to off-street parking and builds on the 400 fast-charging points that are being delivered by London boroughs using £9.7m of LEVI pilot funding and additional borough delivery funded by the then Government's on-street residential charge point scheme. TfL is using the LEVI capability funding it has been allocated (spread over 2022/23 to 2024/25) to support the boroughs through additional resource provided through London councils and a research programme. We are also providing strategic oversight to guide borough delivery in line with London's Electric Vehicle Infrastructure strategy.

Zero-emission support fleet

We aim to decarbonise our operational support fleet by transitioning all cars and vans to become zero emission capable (ZEC) by 2030, contributing towards the Mayor's net zero ambitions.

We remain on course to achieve the Mayor's Transport Strategy target requiring all cars in the fleet to be ZEC by 2025.

We are currently investigating options to make our remaining fleet ZEC, including innovative ways to deliver the charging infrastructure needed to accommodate new ZEC vehicles, which will all meet the strictest safety standards.

Zero-emission bus fleet

There are currently more than 1,500 zero-emission buses operating across numerous routes in London. This means more than 17 per cent of the bus fleet operates with hydrogen, battery electric and 'opportunity charged' electric buses. London has the largest zero-emission bus fleet in western Europe. Cleaning up London's toxic air and decarbonising the bus network is an imperative, both for people's health and tackling the wider global threat of climate change.

TfL works with multiple bus manufacturers to develop a vibrant and competitive zero-emission market and invest in the latest buses. Alongside being zero-emission, all new buses will have enhanced customer features, such as improved flooring, seating, lighting and customer information, and will meet the industry-leading Bus Safety Standard. We continue to support investment in innovative zero-emission bus technology and jobs and production across the bus industry.

Waste heat

Waste heat from London Underground ventilation shafts is a constant and reliable source of energy. This project will capture thermal energy from the ventilated air to feed to local users, powering heating and hot water.

The project could contribute to serving thousands of residential premises, plus commercial and public buildings. The proposed supply of waste heat would reduce a requirement for gas combustion and could be associated with improved air quality through a decrease in emissions.

Activity is focused on delivering an initial site. A report on the viability of this site is expected by autumn 2024. The delivery model would be for an energy supplier to fund the design and delivery of the infrastructure. We would hold a technical assurance role, to prevent any adverse impact on operations.

Our approach to establishing a longer-term programme on the identification of waste heat opportunities will be driven by the outcome of a recent consultation from the Department of Energy Security and Net Zero. This relates to the creation of heat network zones. More will be known on how this will impact our future projects in the coming months, with engagement ongoing with the Department to understand details as they emerge.

Solar private wire

As London's largest single consumer of electricity, it is our responsibility to identify and utilise renewable energy sources.

The Solar private wire project presents an opportunity to directly receive zero-carbon (solar-generated) electricity from decentralised sources, bypassing the national grid and distribution network operators and associated charges. Not only does this guarantee renewable energy and carbon savings, it also offers potential financial savings as grid costs – estimated to be around £80 per megawatt hour by 2030 and £120 per megawatt hour by 2035 – are bypassed.

Approximately 40 per cent of TfL's carbon emissions are from electricity. Initial investigations suggest our power network can accommodate 64 megawatts of renewable energy from a private wire connection. This represents five per cent of the annual load and is equivalent to the power consumption of an electric car driving more than 230,000 miles.

The intention is for a delivery partner to be procured to carry out detailed project identification, design and delivery. We would ultimately purchase the energy to assist with powering the London Underground network. We are currently finalising procurement and contractual documentation to support an invitation to tender. Once a contract is secured with a preferred delivery partner, work will begin on creating a design-and-delivery schedule across a variety of proposed sites.



As a large power consumer, we need to make use of renewable energy



We are working to improve the thermal efficiency of our buildings

Buildings decarbonisation

Emissions from our buildings represent around eight per cent of total operational carbon emissions. As a high number of assets in our buildings directly burn fossil fuels – primarily gas-powered heating systems – their emissions are broadly unaffected by grid decarbonisation when compared to other operational emissions, such as running the London Underground network on electricity generated by renewables. This programme has been created to prioritise the removal of fossil-fuel heating systems and improving the thermal efficiency of our buildings.

We have received several feasibility studies across a variety of high-priority sites, to assess the opportunities for reducing their respective carbon footprint. Work is underway to interpret these results and use a newly created prioritisation tool to determine the optimal design-and-delivery schedule. Criteria used to prioritise site interventions include the current condition of our assets, the potential for carbon reduction relative to cost, and overall deliverability.

Grant funding of £2.3m has been secured through the Public Sector Decarbonisation Scheme to deliver heat decarbonisation interventions by March 2026 at Neasden depot and Finchley Central signals depot. These sites will have initial designs completed by March 2025.

In the last year, funding has also been allocated to some targeted interventions. A trial of reduced escalator speeds achieved an average 10 per cent power reduction, with associated carbon savings and no observed impact on passenger flow. In the next year, 25 escalators across eight stations are scheduled for delivery, to save 32,500kg of carbon dioxide emissions. Monitoring of these additional sites will be undertaken to help inform future plans for a wider rollout.

Technology

This comprises two technology programmes, Operations technology and Technology and data, with a small number of new rail and sponsored-services technology projects



Technology

Forecast period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and Project Authority (£m)	Variance: Forecast cost v authority (£m)
2022/23 to 2025/26	426	406	832	848	16
Change since last Investment programme report					
No change	44	(45)	(1)	No change	

Financial commentary

Projects with the highest spend in the last quarter include Project Hina (a project to replace ticket reader technology essential for revenue collection); Project Oval (a DfT initiative to expand the acceptance of pay as you go with contactless to suburban rail services across south-east England); deployable enforcement cameras; iBus2 (a project to replace on-bus hardware and back-office systems, providing improved data and tools to operators and improved service reliability and information provision for customers); next-generation computer refresh; London Underground station security integration, and CARP (connectivity asset renewal programme), which renews and extends the operational network to ensure the continued safe and reliable running of the London Underground.

Increased Programme and Project Authority was approved by the Programmes and Investment Committee in February 2024, covering the period through to 2025/26.

All the figures in the table above are shown excluding income and third-party contributions.

Performance over time commentary

Over the last five quarters our forecast spend has decreased by £76m, due to forecast reductions across some projects.

Movement in Programme and Project Authority during the last year was due to two factors. The Quarter 2 2023/24 increase was additional authority approved by the Programmes and Investment Committee in March 2023 and the Quarter 3 reduction was due to £82m of the Quarter 2 increase relating to 2026/27 onwards being removed (a period not covered within this forecast period of 2022/23 to 2025/26).

Programme update

Since the drafting of this report, TfL has been affected by a cyber security incident. This meant that a number of internal measures were implemented, the implications of which continue to be reviewed. A more in-depth review of these implications will be covered in full in the Quarter 2 2024/25 report.

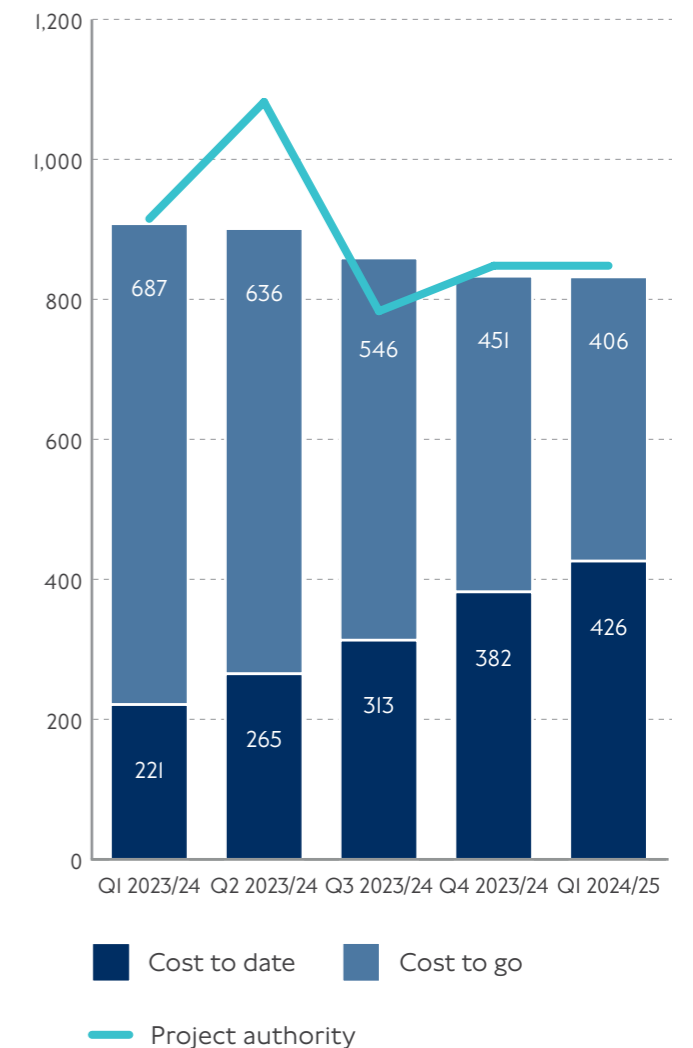
Operations technology Enforcement, compliance, safety and security

Work continues on the rollout of deployable enforcement cameras on our road network, enabling us to target specific safety and non-compliance hotspots with the aim of contributing to meeting our Vision Zero goal. We have identified the sites that will have the most impact and are well underway with the delivery of cameras. There are currently more than 190 sites live and monitoring compliance, with a further 100 sites having equipment installed and being prepared for go live.

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

On average, we manage 10,000 cases of work-related violence and aggression every year. As part of our strategy to address this, the operational employee safety programme has supplied 6,200 body-worn video cameras as part of the essential kit for employees in front-line customer-facing roles, available to all employees when out on the network. We successfully distributed 294 emergency communication devices by the end of 2023. We are currently upgrading the systems we use to record cases of workplace violence and aggression to improve how we manage and report on cases and will be undertaking strategic work to understand our emergency communication requirements in the future.

Technology performance over time (£m)



As part of the station security technology improvement programme, we have completed the design of critical incident management functionality for 26 stations, with installation at four stations and a further 22 due for installation this year. The delivery of this functionality in 2024 will enable us to manage these stations during a critical incident and other key events. We will start design of a further 98 stations next year. We are rolling out safety improvements to our CCTV estate. We can now remotely view CCTV at 243 stations and have started design and installation at a further 22 stations, with installation completed at 10 stations. We are also improving customer Help Points, making sure emergency calls are handled promptly by those best able to assist. We have prioritised improvements at 15 stations, and design has started for a further 82 stations in 2024.

Digital capability is an essential part of our compliance and enforcement activities and without this there would be a significant loss in revenue and operational capability, as well as impacts on customer and employee safety. We are delivering a new digital platform and mobile applications to support enforcement, compliance, policing and community safety officer functions across our network. In April 2024, we launched the first phase for bus revenue inspections to 135 officers who are benefitting from quicker, more streamlined processes to support their day-to-day work. A soft launch of the second phase for transport support and enforcement officers occurred in July 2024.

We are in the process of transferring a small number of Taxi and Private Hire licensing and regulations projects into the Operations technology programme. This includes the existing Taxi and Private Hire re-let and statutory standards projects which deliver a replacement system for the management of driver/operator licensing to meet DfT statutory standards. User acceptance testing for the replacement licensing and regulation system is progressing at pace and an initial go-live is planned for February 2025.

Network and public transport management

We are delivering an innovative new road management system to reduce delays, improve journey times, and encourage a shift to more sustainable modes of transport.

Real-time optimiser (the system for managing TfL's 6,000 traffic signals) was delivered into live operations in March 2024. This paves the way for FUSION (the optimiser for traffic signals) to be implemented. Combined, the systems will allow TfL to optimise traffic signals for all modes, improving network performance and our ability to manage incidents. Further enhancements to the system are planned for 2024.

The Common Operating View – Incident Management System remains on schedule to complete delivery in Quarter 3 2024/25. This will enable more effective and efficient management of the road network and help us manage incidents by providing a direct link to variable message signs on the street.

Having finalised contracts in February 2024, we are now proceeding through the detailed design stages for the iBus 2 project, which will renew and upgrade the on-bus system providing live bus information to our control centres and interfacing with passenger information displays at bus stops. Work remains on track to complete in 2027. Linked to this project, we are continuing to evaluate suppliers for the new Countdown 3 system, which will provide improved passenger information relating to bus arrival times and other relevant information, such as network disruption updates. We remain on schedule to award a contract for this project in late 2024.

We are also working to replace around 100 end-of-life ticket vending machines on the DLR to maintain passenger service levels and to introduce passenger counting on London's bus fleet, enabling our bus passengers to make improved journey choices.

Micromobility rental

Procurement is ongoing for a new operating contract for the Santander Cycles scheme, as the existing contracts expire from 2025.

Government legislation is needed to give cities the powers to properly manage both non-docked rental e-bikes and rental e-scooters to improve safety, ensure parking is better controlled and to provide a better user experience for customers. In the meantime, TfL, London Councils and London boroughs are exploring the design of a single coordinated future scheme to manage dockless e-bikes and e-scooters in London through a contract, to improve parking of the vehicles while also increasing the quality and sustainability of these services in London. The London e-scooter

rental trial continues to operate in parallel, delivering more than four million sustainable trips since it began in June 2021.

Connectivity

Since replacing the 20-year-old legacy radio base stations at 293 sites across the London Underground, we are now benefiting from increased reliability, with no failures to date, and reduced power consumption, which has lowered our carbon emissions. We continue to rollout new handheld radio devices to London Underground staff, with the Bakerloo, Piccadilly and Victoria lines now complete, and more than half of the Northern line completed.

We are renewing three obsolete data networks with a single new network infrastructure capable of transmitting multiple types of communication. This work will ensure that critical information like operational data, CCTV and radio continues to be transmitted reliably, facilitating the continued safe operation of the London Underground. As it rationalises multiple existing systems, this new data network will be cheaper to operate and will further reduce our carbon footprint. Detailed design works have begun, fibre optic connectivity has started, and in 2024 we are planning to complete early testing of the migration process. Work has begun on the project which will re-tender the operational and maintenance contracts for these critical communication services.

We are renewing network connectivity and Wi-Fi at 36 bus and coach stations/offices, to provide colleagues with access to tools which will improve customer service. Colleagues at Vauxhall bus station, which went live in May, are experiencing a 10-fold increase in connectivity speed.

Digital asset management

A programme is being developed to digitise our asset management capabilities to improve future planning, decision-making and efficiency. Procurement activity is ongoing for a system to support strategic investment decision-making in a consistent, transparent and evidence-based way.

Technology and data

Payments

We have successfully delivered the introduction of a new concession for eligible care leavers aged between 18-25 and living in London. From 21 February, in partnership with London Councils, those eligible can apply for an Oyster photocard which entitles them to half-price adult fares on bus and tram services.

On 3 March we delivered the annual fares revision. As directed by the Mayor, pay as you go fares on our services have not increased. However, fares for joint products, including pay as you go fares for journeys involving National Rail, daily and weekly caps and Travelcards increased by an average of 4.9 per cent, in line with the DfT's direction to the train operating companies.

As part of this fares revision, we implemented a trial of removing peak-time fares on Fridays from 8 March to 31 May 2024. This change meant that off-peak Tube and rail fares on pay as you go with contactless and Oyster applied all day, removing the higher-peak fares which apply

between 04.30 and 09.30 and between 16.00 and 19.00. The change also meant that 60-plus and older persons' Freedom Passes were valid all day during the trial, removing the pre-09.00 restriction. This trial change was introduced to stimulate economic growth on Fridays, where demand has not recovered as strongly as on other days of the week.

Digital workplace

Activity on our future desktop initiative (successor to Windows 10) continues apace, with multiple project workstreams underway and scheduled to continue well into 2025. The importance of this project means it will be the primary focus for our Digital Workplace team and many other areas of Technology and Data during this time.

We are at the midway point in two significant hardware refresh projects. Our London Underground iOS refresh project has replaced 733 of 1,872 legacy mobile devices used primarily by our front-line staff to deliver a first-class customer service. In parallel, our laptop refresh project has now replaced 1,200 devices across the business, ensuring our colleagues have hardware to support the delivery of Windows 11. All decommissioned devices have been donated to the Devices for Schools initiative led by our colleagues in the End-user computing team, who have thus far donated more than 800 devices to 38 London state schools in support of our sustainability objectives.



We have donated 800 digital devices to 38 London state schools so far

Networks

Work to extend mobile coverage on the Tube has continued this quarter. Building on the delivery of 4G to all Elizabeth line stations, the tunnel sections on the Elizabeth line from the Royal Oak portal through to Paddington and on to Liverpool Street have gone live with 4G and 5G.

Following successful testing on the Piccadilly and Victoria lines, tunnels and stations are being launched on all three lines, which significantly improves connectivity, particularly in Zone 1.

Some key stations that have gone live in Quarter 1 are Bank, Bond Street, Covent Garden and Piccadilly Circus. We remain on track to deliver improved coverage across the whole of the Tube network, as well as the Elizabeth line, DLR and London Overground, by the end of 2025.

Our project to replace the end-of-life data network services that underpin virtually all surface services is nearing completion. Our contract with the incumbent provider (GTT) expired at the end of August, and we have completed the migration of all critical services and shutdown of the legacy network.

In addition to reducing cost and improving reliability, this project is reducing the amount of active equipment employed to deliver data network services, saving power and reducing our Scope 3 emissions.

We have completed the delivery of WiFi to 26 London Underground train crew accommodation locations, with a further two to be delivered in Quarter 2 2024/25.

This will provide train operators with reliable access to critical operational data and systems.

Technology services operations

As a central part of the GLA Group we are undertaking several initiatives, termed IT shared services (ITSS), that will see TfL assume responsibility for agreed IT systems and services across the GLA Group.

Within the ITSS initiative, we have migrated a total of 1,338 colleagues to their OneLondon (TfL) devices across the GLA and the Old Oak and Park Royal Development Corporation, with the device rollout scheduled to complete in Quarter 2 2024/25. TfL print devices have also been deployed across all applicable GLA sites.

Additionally, within ITSS, eight GLA and Mayor's Office for Policing and Crime business systems have been re-hosted within the TfL environment, with a further two business systems in flight. Finally, Office365 tenant migration design activities are nearing completion.

We have concluded early market engagement activities for two further key initiatives, the provisioning of an IT service management (ITSM) strategic solution and the introduction of a software asset management (SAM) service provider. Procurement activities across both ITSM and SAM have now begun.

Enterprise resource planning

The myJourney phase 2 project has started user acceptance testing in readiness for going live on 23 September. This project replaces our core HR system of records

and digital system for recruitment and onboarding new colleagues across TfL and the GLA. It is a prerequisite for the new payroll system in future years.

Our core SAP ERP system and its upgrade to SAP S/4 HANA has revised its procurement strategy, with the foundation infrastructure and hosting decision being prioritised ahead of the system integrator market tender. This change in approach by Commercial does not change the target contract completion date to onboard an implementation partner by March 2025. In parallel, preparatory process and data improvement work in advance of contract award is progressing well, especially in Operations.

At the end of June, we upgraded the SAP Ariba procurement system to enable supplier commerce automation. This will enable our suppliers to automatically transact through the SAP Ariba e-commerce network increasing procurement and payment efficiency. The Procurement and supply chain team are now onboarding suppliers to the service.

The Operational workforce management project continues with its Agile build activities ahead of the launch of new software, UKG Workforce Dimensions. Phase 1 for the rostering and scheduling of compliance, policing on streets, London Underground revenue control and bus operations colleagues goes live in March 2025. This will be preceded by a working pilot from October 2024 to ensure operational readiness. Phases 2 and 3 will then look to deploy the solution across the majority of operational teams in 2026.

Contact centre operations

We successfully completed the transition of all contactless payment cards customer-contact handling services from the previous incumbent, Novacroft, to our new service suppliers in April. Journeycall are now managing 40 per cent of our customer call handling service and 100 per cent of all customer correspondence. Marstons are managing the remaining 60 per cent of customer calls. Initial performance has been good, with call service levels improving every period and correspondence response metrics at a record high.

We have started the re-tender project for adult Oyster contact handling and card fulfilment. We have agreed how the work will be tendered and how we will be taking all suppliers on the contact framework through these decisions and the re-tender process. We completed the tender pack documentation in July and published the tender in August 2024.

Following approval of the contract award recommendation for the contact centres' interactive voice response service, the contract has been awarded to Eckoh. The new contract started on 1 July 2024.

Data analytics

Following the endorsement of our strategic vision for data and our delivery approach, we continue to work on planning and piloting a detailed programme of work which seeks to both deliver value and improve our data maturity through the delivery of new data products, using best practice to guide and enhance our ways of working with data and use of enabling technology, and uplift our skills and capabilities.



Our new platform supporting mobile payments will help protect revenue

Further to a request from our Chief Customer and Strategy Officer, we have added year-on-year comparisons to the Taps public dashboard. This now allows users across the business to easily compare passenger travel counts with last year's equivalent day. Previously, counts were compared to 'normal' pre-pandemic demand but as customer behaviour continues to return to normal, pre-pandemic baseline comparisons were growing increasingly outdated.

Digital

The TfL Go app has now been downloaded almost 6.5 million times, with 892,000 monthly active users in June 2024.

In May we launched our first commercial partnership in TfL Go with Team London Bridge, helping to promote sustainable travel and a vibrant London in a trial that ran until the end of August. We are actively exploring future opportunities with other venues and destinations and have several new partnerships in place through to early 2025.

We continue to migrate the Mobile Payments API to a new, supported platform. This will protect the approximately £120m in revenue that we collect via our apps. In June we successfully deployed several more components as part of the ongoing iterative release process, and deployed the remaining two APIs in early August, ahead of the August deadline to maintain service. This is a prerequisite for the launch of payment functionality in TfL Go, which is on track for September 2024.

Alongside this, we are readying digital platforms for the London Overground line naming. This will include a new status page on the TfL website. We are also finalising the delivery of Tube status push notifications in the app, with a launch planned for Quarter 3 2024/25.

Technology challenges

Resourcing continues to be a challenge, with numerous campaigns unable to fill all required vacancies. This issue is most notable for senior or specialist roles. We have now introduced a system to track our strategic resourcing situation in the Investment Portfolio. The system is now live, with the majority of our resources allocated, however there is still work to be done before we get the full picture. We are engaging at senior level with the PMO team, which owns the tool to overcome the early adoption challenges and ensure that the data is complete. Of itself, this will not resolve the issues with resource capacity or capability, but will allow us to make faster, more accurate decisions on workload prioritisation and allocation.

There is a similar challenge in our customer community, with business engagement in projects an ongoing challenge due to business-as-usual operational demands which must take priority.

There are issues with supplier resource which have affected delivery this year, however there are signs that the resource pressures in the supply chain are starting to ease, with one of our strategic suppliers now reporting that they have secured all the resources they were seeking.

Street, bus and rail-sponsored service renewals

This programme groups together renewals of Streets, Buses, River Services, London Overground, DLR and London Trams. These programmes share a common approach to work-bank management and by joining together associated activities such as bus-focused renewals this offers improved investment prioritisation and efficiencies



Street, bus and rail-sponsored service renewals

Forecast period	Cost to date (£m)	Cost to go (£m)	Forecast cost* (£m)	Programme and Project Authority (£m)	Variance: Forecast cost v authority (£m)
2022/23 to 2025/26	418	368	786	1,137	351
Change since last Investment programme report					
No change	52	1	53	No change	

Financial commentary

There has been a £53m forecast increase since the previous quarter, more than offsetting the £23m reduction reported in the previous quarter. This forecast update reflects an increase in the Streets side of programme, more closely aligning future years' investment with the asset strategy reprioritisation exercise that was completed during the 2024/25 budget.

Performance over time commentary

The forecast over the last five quarters has been broadly stable, with an increase of £39m (five per cent) over this timeframe, predominantly in Streets. Programme delivery in Quarter I was £52m, aligned with the average spend for the previous four quarters. The increase in Programme and Project Authority in the year was granted by the Programmes and Investment Committee in June 2024 for scope to be delivered through to the end of 2025/26, and DLR station controllers to the end of 2028/29.

Programme update

The programme consists of a capital programme, surface operations assets, surface major assets and LIP support to the London boroughs for bridges and roads. It also includes renewals such as bus, rail and sponsored-services renewals, and supports investment needed to maintain the safety, performance and reliability of the DLR, London Trams, London Overground, Cable Car, Cycle hire, New Routemaster buses and Woolwich Ferry.

Delivery in 2023/24 successfully achieved the planned outputs and benefits, therefore mitigating asset risk and ensuring the continued reliability and safety of our networks. However, the level of investment was significantly below that required (up to 50 per cent lower on some asset types) to remove the backlog of renewals and maintain service levels.

All the figures in the table above are shown excluding income and third-party contributions.

Plans for 2024/25 are now fully developed but, due to constrained budgets, several projects have been deferred.

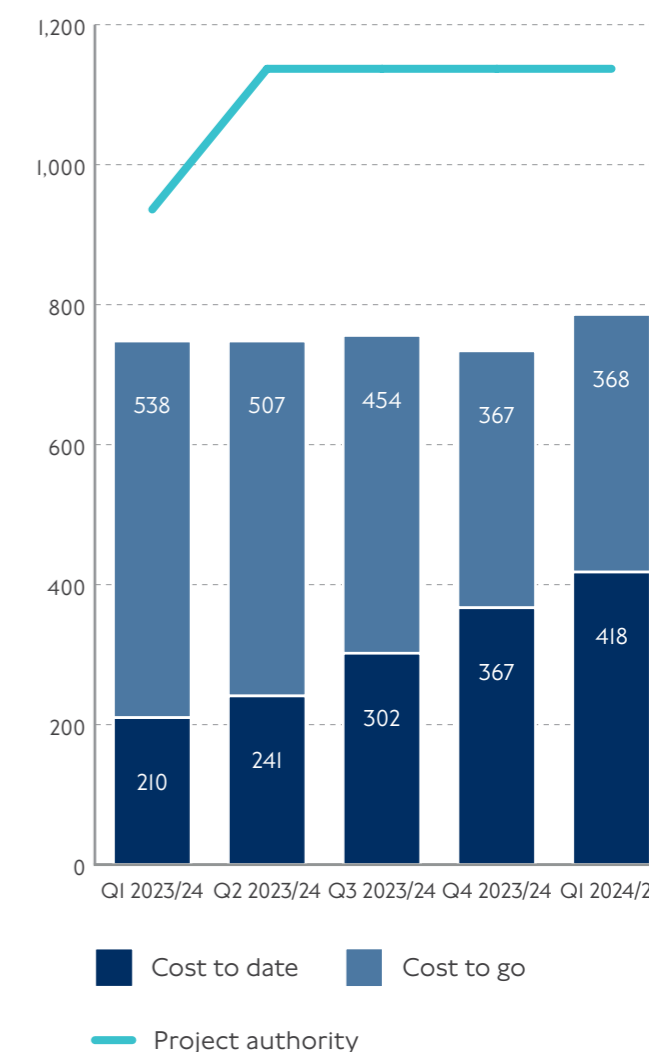
Securing third-party funding, for example through the DfT's Major Road Network programme, is therefore essential to help mitigate asset risks. Nevertheless, through tough decisions and our work to reduce costs, we are beginning to work through the programme of long-delayed and vital improvement to the network, including further work on the A40 Westway. This a key strategic route and one of our most important freight corridors. It is one of London's busiest roads, carrying around 90,000 vehicles per day.

Streets

Blackwall Tunnel southbound

This 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 Joint Venture as design and build contractor in April 2023 and plan to complete the design work by November 2024 with delivery timescales subject to budgets and value for money. Any closures required to deliver the project will be after the opening of the Silvertown tunnel.

Street, bus and rail-sponsored service renewals performance over time (£m)



* Forecast cost reflects forecast starting 2022/23 vs authority which includes legacy Public Transport programme starting 2017/18.

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 feasibility work, we have selected a preferred option to fully refurbish and strengthen the flyover which 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 has been completed. The outline business case was formally approved by the DfT and Treasury in April 2024, unlocking up to £57m support through the Major Road Network Fund towards the required repairs. The contract for design and build has now been awarded and the detailed design stage begun. The construction phase is programmed to start March 2025 subject to DfT approval of the full business case.

A40 Westway

Following successful completion of the major roller shutter joint replacement, the project is now focused on delivering the remaining scope. This includes further joint replacements, parapet renewals and repairs to concrete deterioration. The project will deliver essential renewals of one of London's key highway assets, ensuring that the road network is safe and operable and avoiding unplanned closures and disruption.

Concept design work for the remaining elements has been completed and we have awarded the contract for work on eight expansion joints. Detailed design is progressing well. We began the next

stage of the delivery on 21 July this year as planned. This includes work on the slip roads at the Westway roundabout. We are working with key stakeholders to coordinate and plan the delivery of this stage and have ensured advance publicity is in place alongside a travel demand management campaign. Our plans have been carefully co-ordinated to, as far as possible, take place during the summer holidays when traffic volumes are lower.

We are also progressing with the design work on two further expansion joints to establish the earliest opportunity to replace these remaining vital components. The progress of concrete repairs and other works will start at a future date, subject to budget availability.

Hammersmith Bridge

The London Borough of Hammersmith & Fulham started stabilisation works in 2022. The majority of the works are now complete, ensuring Hammersmith Bridge is safe and can remain open to pedestrians and cyclists in the short term. Alongside the DfT, we continue to support the borough in developing a business case for longer-term strengthening works to fully restore the bridge.

Carriageway renewal

This quarter we have completed the resurfacing of A1202 Commercial Street (Wentworth Street to A10 Shoreditch High Street). We have also started the resurfacing of A4 Hyde Park Corner, A302 Grosvenor Place and A23 Brixton Road. The project team continue to plan works for A1 Upper Street, A316 Lower Mortlake Road and Apex Corner.



Repairs to the Westway keep this key highway safe and avoid disruption

Buses

Kingston Cromwell Road bus station

The major redevelopment of Kingston Cromwell Road bus station will deliver a bus station that offers a better customer experience, is easier to navigate, and is greener and more energy efficient.

The new bus station includes the introduction of energy-efficient lighting, energy-efficient buildings with a low environmental impact, a new sustainable urban drainage system, new vegetation including a green bus station canopy edge, and the introduction of solar panels.

The build began in August 2023 and works are planned to complete by Quarter 3 2024/25.

New Routemaster refurbishment

This programme is the mid-life refurbishment of 998 TfL-owned New Routemaster hybrid powered buses. To date, 607 buses have been refurbished, 32 of which were during financial year 2024/25. The programme target for financial year 2024/25 is to complete a cumulative total of 700 refurbishments.

Bus refurbishment centres have been rephasing their resources to a smaller TfL pipeline, reprioritising other work to ensure they generate enough revenue by working with other bus operators across the UK to protect jobs. The operating expenditure budget impact of this reduced investment will be up to £35m of additional pressure in the next five years.

The programme has successfully delivered enhanced customer experience improvements while driving revenue, safety benefits, patronage growth and a reduction in operational costs. It relies upon

refurbishment centres based across the UK and has a fully UK-based supply chain.

River Services

We have completed our five-yearly out-of-water assessment and maintenance cycle on both Woolwich Ferry vessels, in line with our regulatory obligations. Both vessels have now received Lloyds Class approval, with successful completion of the Lightship survey on the second ferry at the end of March 2024.

Preparatory work to allow the annual out-of-water checks on the vessels to be undertaken using existing infrastructure at Woolwich is being undertaken, with the objective of enabling the on-site maintenance grid to be usable by October 2024.

Additional layby berth options continue to be reviewed, with the opportunity to use existing assets instead of building new ones. Meetings have been held with the Royal Borough of Greenwich to agree next steps in using their existing berth.

The operation of the existing auto-mooring system is being reviewed with this work being used to understand the options available to deliver more reliable auto-mooring in the future and to build a strong business case.

Our contractor, Telent has begun preparations for installing our customer Help Points at ferry terminals.

A proof of concept to provide live journey information for the ferry service will be trialled in September 2024 to inform next steps with a further project.

Work is ongoing on the linkspan (a type of drawbridge used to allow moving vehicles on and off the ferry in changing tide conditions) and works are on target to complete by autumn 2024.

Concept design work is being advanced for the project to improve the flexibility and capacity of the Woolwich Ferry north terminal, in tandem with a Safe and healthy streets scheme to improve the streetscape on Pier Road and facilitate an affordable housing scheme on land adjacent to the terminal.

London Overground

We have considered a range of procurement options for the replacement of the East London line signalling control system. These include working collaboratively with Network Rail and exploring sourcing replacement by TfL. A robust procurement strategy has now been developed capturing the requirements to enable the services of dedicated original engineering manufacturers (OEM) suppliers and it has been agreed that TfL will put out a tender directly rather than through Network Rail. Four suppliers have expressed interest. Tender is expected to go out in September 2024.

Rhomberg Sersa UK were selected to replace a total of 2,300 insulated track baseplates within the Thames Tunnel. They delivered 135 insulated baseplates and prepared a further 1,000 of the new baseplate locations over the 2023 Christmas period. Further preparation of 400 locations was carried out under possession in March 2024. There have been unforeseen issues with ground conditions – we are therefore undertaking a review of the most appropriate way of completing these works and expect to reach a final decision by September.

Work has started on replacing the redundant BT Kilostream circuits that control the traction power switches for the East London line. BT, Dyer & Butler and Motion Rail are all collaborating on this project, which started delivery work in July and will be completed by the end of September 2024.

DLR renewals

Procurement activities for the renewal programme continue, with continued priority given to critical and safety-related projects. We are looking to achieve efficiency where possible through early engagement with our contractors to understand where value can be achieved.

The replacement bogie frame project for the B92 train type is progressing well. DLR has, in consultation with our operator, developed a new strategy to recover spare bogies from the B92 units being scrapped, which has resulted in a £700,000 saving to the programme while maintaining a sufficient spares. Wheel-slip protection trials have been completed. Software installation has begun for the plan to upgrade all I10 train units.

Long-line public address system work is now finished, and migration is ongoing to bring the new system into use. This system is used for station announcements, which are essential for evacuations as the majority of DLR stations are unstaffed. Automatic people-counter equipment server migration is complete, and a contract has been awarded to replace the DLR transmission network.

Signalling

Station controllers are an integral part of the DLR signalling system and the equipment is becoming obsolete. A replacement contract has been awarded to Hitachi (formerly known as Thales), following a successful negotiation. The existing first-generation station controllers will be replaced with fourth-generation controllers which will support the rollout of the new DLR trains in 2024 and expansion of the DLR network.

The project is looking to ensure that work required to integrate the new trains, funded through the Housing Infrastructure Fund, is combined to reduce any risks on operational requirements. Loop cable renewal continues, with the majority changed on the east, south, west and Stratford International routes of the network.

High-voltage projects

High-voltage projects were impacted by the UK Power Networks (UKPN) sub-station fire at Poplar in March 2022. As a result, UKPN completion of power supply was delayed until July 2024, requiring some key projects to be re-programmed so as not to affect services. The Poplar direct current (DC) switchgear has been commissioned into service. Custom House DC replacement switchgear is commissioned into service. Works have completed on-shore supply at Beckton and have begun at Poplar depot, which provides power in the workshops to move trains without the third-rail traction system. Poplar depot power supply has been sectionalised and works completed at Royal Mint Street for additional low-voltage supply to the substation. A contract has been awarded to replace eight transformer rectifier units to support the new trains project.

Low-voltage renewals

Canary Wharf and Heron Quays low-voltage renewals are progressing, with Heron Quays planned to be completed in Quarter 4 2024/25. West India Quay lighting renewal has been commissioned into service. Poplar low-voltage renewals are complete, including the migration to the new switchgear.

Platform resurfacing

The second phase of platform resurfacing has begun, with works fully completed at All Saints, Royal Albert and Prince Regent DLR Stations. Construction work has begun and is currently being delayed to allow New Train testing to progress. We have completed the Bank tunnels cross-passage door surveys, which will allow us to agree product selection with our contractors. Station equipment rooms surveys have started to ascertain the scope required to bring the rooms to meet fire-rating standards. A contract to replace the existing carbon dioxide fire suppression with a technical gas has been awarded and has begun.

Track

Track-fixing works continue. In Quarter 1 we completed the last remaining worksites and closed out minor defects. Switch and crossings renewals were undertaken with the full renewal of I,141 and I,142, on a four-day closure during Easter. Re-railing was undertaken with a total of 700m of track rail renewed and four structural expansion switches upgraded.

Lift and escalator upgrades

The lift system upgrade project has started on the next phase of 46 lifts. In addition, three of the four escalators at Cutty Sark have been refurbished and returned to service, while works have yet to begin on the remaining escalator. Currently three of the four escalators at Cutty Sark are out of service due to faults.

Two escalators at South Quays have returned to service following refurbishment. Work has begun on lift renewals at Westferry, Limehouse, City Airport, King George and Star Lane. We have also begun mid-life refurbishment on the escalators at East India and Canary Wharf stations.

London Trams renewals

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

Track renewals

The first phase of the East Croydon and George Street track renewal was successfully completed during the track closure in February 2024 and the second phase was completed in the second closure in April 2024. The ballasted track renewal at Sandilands junction was also completed in the April 2024 closure.

We have initiated site surveys and design work for future track renewals projects, such as Shirley Hills road crossing, Kent Gate Way road crossing, Saffron Curve and Barclays Curve embedded track renewals in Croydon town centre, and Mitcham Interlace ballasted track renewal.

These projects are expected to be on site in 2025. We are looking into accelerating the Barclays Curve renewal due to deteriorating asset condition concerns.

Birkbeck tram stop

We completed site investigations and design to renew the ramp and retaining wall which provided access to Birkbeck tram stop. However, due to funding constraints this year, a value engineering exercise is currently being undertaken. This will allow the most critical elements of scope to be completed in 2024, with the final phase of works postponed to 2025.

London Trams depot

The fire doors were completed in March 2024 and compartmentation aspects have been released to TfL framework suppliers for tendering, due to non-performance by the previous contractor. The plan is to complete delivery by the end of financial year 2024/25.

The contract for TfL's first net zero carbon project – Therapia Lane depot decarbonisation – has been awarded, with work currently forecast to start in Quarter 3 2024/25.

Tram control system renewal

The feasibility study for the tram control system renewal to replace critical life-expired components is ongoing and will complete in Quarter 2 2024/25.

London Underground renewals

This programme delivers critical renewals across multiple asset groups that form an integrated transport system, including whole-life asset interventions on our train systems and wider infrastructure. The programme also includes renewals for the Elizabeth line and our colleague welfare projects



London Underground renewals

Forecast period	Cost to date (£m)	Cost to go (£m)	Forecast cost (£m)	Programme and Project Authority (£m)	Variance: Forecast cost v authority (£m)
2022/23 to 2025/26	858	773	1,631	3,721	2,090
Change since last Investment programme report					
No change	106	(29)	77	No change	

Financial commentary

Quarter I begins the 2024/25 financial year with a strong performance delivering ahead of budget expectations, with £106m of cost to date for Quarter I 2024/25.

Project delivery this quarter is mainly observed across the Central line improvement programme (£11m), Fleet overhauls (£31m) and Track (£27m), with the balance delivered across remaining asset categories.

Cost to go has reduced by £29m due to the reprioritisation of spend until after the 2025/26 reporting period. Forecast cost has increased by £77m following additional financial authority granted as part of 2024/25 budget setting.

Performance over time commentary

In Quarter I, London Underground renewals are delivering ahead of forecast with spend to date during the reporting period of £858m and achievement of £1.5m in cost reductions.

The accelerated performance in the quarter was assisted by a strong start and delivery confidence in the current year's programme remains high. There are planned increases in the volume of fleet overhauls. Furthermore, the Central line improvement programme and incremental signalling renewal project are moving to their main delivery phases.

Network-wide track renewals

In Quarter I, we converted 1,975 metres of bullhead rail with the more modern flat-bottom form. We also completed 419 metres of deep tube renewal reconditioning works, improving reliability and reducing noise.

During weekend possessions we delivered the following ballasted track renewal on the District line:

- 193 metres between Gloucester Road and South Kensington (possession also included 25 metres of 'open-cut' drainage works)
- 195 metres at Hammersmith through platform I

Victoria line (fleet overhaul and depot control system renewals)

We completed installation of the pressurised ventilation system, coupler overhaul, trailer wheelset overhaul and phases I and 2 of door works across all trains in service. We also continue to undertake level 7 activities such as cab seat overhaul.

Metropolitan line (fleet overhaul)

We completed overhaul of the fleet. Overhaul of doors is scheduled to start in October 2024.

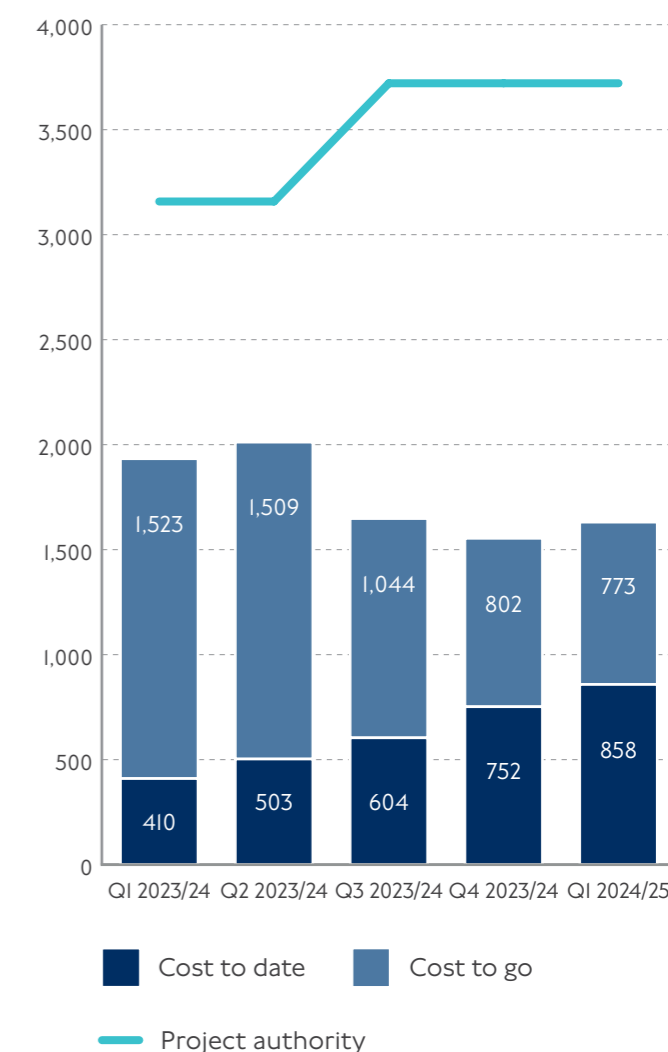
Metropolitan line (Liverpool Street escalators)

We completed installing the three escalators ahead of schedule. They are positioned as designed, and step and chain installation has begun. Electrical and fire system work continues as planned.

District line (fleet overhaul)

We will start the S7 fleet overhaul in April 2025. Work in advance of the main overhaul is complete on 14 trains (11 per cent of the fleet).

London Underground performance over time (£m)



All the figures in the table above are shown excluding income and third-party contributions.

Jubilee line (fleet overhaul and component renewal)

Work is in progress to start door overhauls in July 2025. We are also planning to develop designs to modify the drawgear in line with the external supplier underframe solution. We have also completed 40 out of the 63 trains for the programme lift element of the works.

Jubilee line (ventilation systems)

We have fitted 60 per cent of the smoke damper actuators to the ventilation systems at Bermondsey and Stratford Market depot. Works for the replacement of controls and refurbishment of fans on the east end of the Jubilee line are progressing to programme. The overall ventilation programme is scheduled to finish in September 2026.

Jubilee and Central lines (escalators)

In Quarter I, we continued work on the next three escalator refurbishments. At Bank and London Bridge, the escalators returned to service in mid-July. Canning Town is currently forecast to be returned to service in September 2024. Station-specific design challenges have slightly extended the on-site activities. These works continue to incorporate the opportunity to renew fire linear heat detection systems in the escalator machine chambers.

Jubilee and Northern lines (incremental signalling upgrade)

The detailed design for the replacement of central computers on the Northern line has been completed and installation works are underway for the first pair of computers. The detailed design for works to replace the train operator displays on both lines is ongoing.

Northern line (Kentish Town escalators)

Work to fully replace both of the escalators at the station is progressing well and we are on track to complete the installation of the new escalators this summer. Remedial work on platform and corridor tiling is progressing as planned.

Earlier this year, we identified essential assets that require complex structural works to repair. Unfortunately, due to the condition of the assets and the ongoing complexity of this work, we are now expecting to reopen the station by the end of this year. The nature of the essential work, which involves removing and replacing the concrete ticket hall floor, concrete ceiling and supporting steelwork, has required additional time to design and take forward safely. We are looking at all possible options to reopen the station as quickly as possible without compromising the safety of our customers and colleagues. This includes looking at whether we can safely reopen the station while some works continue behind hoardings.

Piccadilly line (fleet overhaul and signalling renewals)

We have completed life-extension works and service access door overhaul across the fleet. We continue to remove components which contain polychlorinated biphenyls (PCBs – a hazardous chemical) on the Piccadilly line, all of which are in non-customer-facing areas, with nearly 200 track capacitors replaced during the quarter.

Piccadilly line (Holloway Road lifts)

The replacement of lift 2 has started following the completion of lift 1 in June 2024. The project is scheduled to complete in January 2025.

Central line (fleet and signalling renewals and incremental signalling)

In Quarter I, the Central line improvement programme team successfully completed the annual Independent Investment Programme Advisory Group assurance with no critical issues. We have also relocated existing manual boarding ramps to the new position of the accessible car.

The Central line life-extension project continues to replace old equipment, with hardware installations completed at Ealing Broadway, Epping, North Acton and Woodford. On the control and information side, we have started the installation of the control centre network, with 10 out of 17 sites completed.

Feasibility and planning for the first tranche of the incremental upgrade to the signalling interlocking computers on the east end of the line is ongoing, with full contract award expected in the first quarter of 2026.

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

We completed the last cyclic overhaul, and a new cycle started with five per cent of the fleet's programme lift completed. We have fitted wheelchair bays on 13 trains and the first fully accessible train to run the whole length of the Bakerloo line is planned to enter service in early November 2024.

We continue to install key signalling and control interface equipment in lineside rooms. Fifteen out of 16 sites have been completed, with work at Paddington still in progress. Cable installation and initial testing is ongoing. Initial design works for the new control room has begun.

Bakerloo line (Marylebone escalators)

The work finished on the final escalator replacement in September 2023. In Quarter I, we completed station welfare renewal works and fire hydrant upgrade works. We also completed work on the gateline, the final Bostwick gate and panelling works.

Bakerloo, Central and Waterloo & City lines (accessibility)

The DfT consultation to extend the rail vehicle accessibility regulations exemption for the Bakerloo line closed earlier this year. Discussions with the DfT on the exemption, previously paused due to the general election, have resumed. We have also converted all fixed-term contractors to permanent staff to ensure that full resources are in place to meet the compliance date.

Rail adhesion train

Work is in progress to start the overhaul of the District line rail adhesion train (D78), with completion expected by September 2025.

Mechanised track renewal vehicle

After consulting with our trade unions, we are making further safety improvements to the mechanised renewal vehicle (MRV). Final trials are expected by September 2024, once this work is complete. After the trials, we will make the MRV available for other projects.

Modular points and crossings

We are working on handing over our Kirow cranes from the project team to the business-as-usual teams. They will take over routine maintenance and ensure the cranes are available for other projects. We expect this to be completed by November 2024.



Ecology surveys are undertaken prior to devegetation of embankments

Remote track monitoring

This project is delivering new equipment which will be installed on two wagons to enable track condition recording. This will replace the older technology. A feasibility study to determine the next phase of the project has identified several technical issues which need further investigation. We are currently working on an options assessment report to determine the best way forward for the project. A decision is expected by September 2024.

Engineering vehicle overhauls

The battery locomotive and repair process for the bogie frames is under trial, with completion now expected by the end of September 2024. Successful completion of this testing will enable the full production programme for the bogie frame repair and overhaul to begin. This will be an integral part of the battery locomotive overhaul programme, including a similar strategy for the traction motors. A full scoping document for the overhaul is currently being reviewed by engineers.

We have mobilised a new workshop facility at our Acton works depot to enable directly employed maintenance teams to carry out overhaul works on our fleet of engineering wagons. The facility is now up and running. We expect to be able to achieve two wagon overhauls per period by September 2024. Work to overhaul one of our Matisa tampers is also underway.

Network-wide water ingress remediation

Feasibility work for Mayor Sworders Arches substation has been agreed by the power engineering team and the project team is undertaking final checks. This will be followed by the update of the concept design by the end of January 2025 and then procurement for the build.

Concept design completions for Chancery Lane and St Paul's stations are scheduled for September 2024. Detailed designs for Charing Cross and Liverpool Street stations are planned for completion in June 2025.

Network-wide cutting and embankments

We have completed works on site on the cutting between Grange Hill and Chigwell stations on the Central line and we are preparing to close the project. Procurement of drone topographical surveys has been completed for the embankments between Finchley Central and Mill Hill East and Triangle sidings.

An ecology survey was carried out at both sites in July 2024, which will enable completion of the de-vegetation of the assets in mid-September. After that, a physical topographical survey will be completed to supplement the drone surveys that were done in August 2024.

Ground investigation surveys have been completed between Debden and Loughton and the report was received in August 2024. Ground investigation surveys are ongoing between Northolt and South Ruislip with the report expected in September 2024. Procurement of a constructability report for North Acton to Hanger Lane is now completed; the report has been received and distributed to stakeholders.

Plaistow power substation roof replacement

All works have been delivered. The project was planned to close in August 2024. However, this will now happen at the end of October, due to engineering resource availability to sign off closed documentation.

Station platform remediation works

Remedial works at 10 sites (delivery phase 1) started in July 2024 and are scheduled to complete in December 2024. Procurement for delivery phase 2 has been paused due to reprioritisation of delivery phases. The project is now pursuing procurement and main works for delivery phase 3 in 2024/25 based on risk and limited funds. The invitation to tender is scheduled for May 2025 and contract award in August 2025. The order of delivery for phases 2 and 4 is to be determined.

Welfare facility renewals

We have completed five rooms at Westbourne Park, with works near completion at an additional two sites. We have awarded contract for five sub-stations and preparing for mobilisation on site. Two tenders are under review, with further tenders to be released in Quarter 2 2024/25.

Smoke and heat exhaust ventilation systems

We are replacing and refurbishing the 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. We have started site works at Stratford, which are scheduled for completion in late October 2024.

Secondary lifts (supporting step-free access)

Green Park lift replacement is progressing to plan. Hounslow East lift 2 is currently two weeks behind schedule due to a delay caused by late finish of lift 1 due to design issues. Bermondsey is 10 weeks behind programme due to unforeseen additional electrical works.

Uninterruptable power supply (UPS)

Rolling replacement of UPSs are continuing as planned. Fourteen have now been commissioned on the Jubilee and Victoria lines and power control centres, with 12 planned to be completed by April 2025.

Offline battery power inverters

As part of the replacement programme, 20 units have been commissioned in phase 1. Following successful factory-testing in May 2024 of an enhanced unit, five more have been commissioned as part of a second tranche of 40. These new units include development changes and recycling of key components to help mitigate the obsolescence risk of the remaining units. A separate market engagement has been conducted and contract specifications are being prepared for further units as part of the strategy work on the longer-term solution.

Traction power

Design work to replace isolation switches in sidings were planned to begin in 2024/25 but will need to be deferred to prioritise spending in more critical areas. A replacement DC switchboard at Holborn was fully commissioned in April and the removal of the old 1960s equipment has been completed. We are de-mobilising to hand the site back to allow TfL Hidden London tours to resume in this area.

LED lighting

We continue work at three depots, with Hainault and Ruislip 95 per cent complete. Stonebridge Park (phase 1) is 92 per cent complete. Work will slow down in 2024/25 due to constrained funding.

LED conversion at King's Cross St Pancras station is currently 37 per cent complete. The conversion will be completed by the end of this financial year.

Small station conversion continues, with replacement of 1,000 lamps per period across several different sites currently in delivery such as Canada Water, Hammersmith, Hyde Park Corner, Loughton, Oakwood, Park Royal, Roding Valley, Southgate, Tooting Broadway and Westminster.

East Ham wall rebuild

Early contractor engagement to review feasibility of the works has been completed and a technical proposal for the design and rebuild of the wall was submitted in July 2024. The delivery approach has been routed for endorsement through commercial assurance meetings. Access licences and processes are progressing under the party wall, with 20 of 28 properties that border the railway having agreed terms. Site works are expected to start in Quarter 3 2024/25.

Elizabeth line renewals

The project to renew lighting and fittings (475 units) at Canary Wharf station with a compliant design was completed in June. The project to renew 20 voltage transformers was also completed in June, including 10 that required Network Rail possessions. During this period, the delivery programme for the 2024/25 asset renewals workbank has been developed and baselined to align with priorities.

A track renewal including two sets of half-points was completed at Whitechapel in a weekend possession in June. Works involved the first use of the Robel track machine in a live renewal environment (rather than a trial) and were completed within schedule. They were funded by Crossrail, but lessons learnt will be relevant for TfL-funded works.

Railway systems enhancements

We continue delivery of the Northern line signalling software updates, with the most recent achievement being successful operator checkout of the final release to be commissioned onto the railway in December 2024.

These software updates address residual issues and requirements following completion of the Northern line extension and the Bank station closure works.

This has been rephased to accommodate other projects that are dependent on the same supplier key resources, including the Four Lines Modernisation and DLR rolling stock replacement programmes.

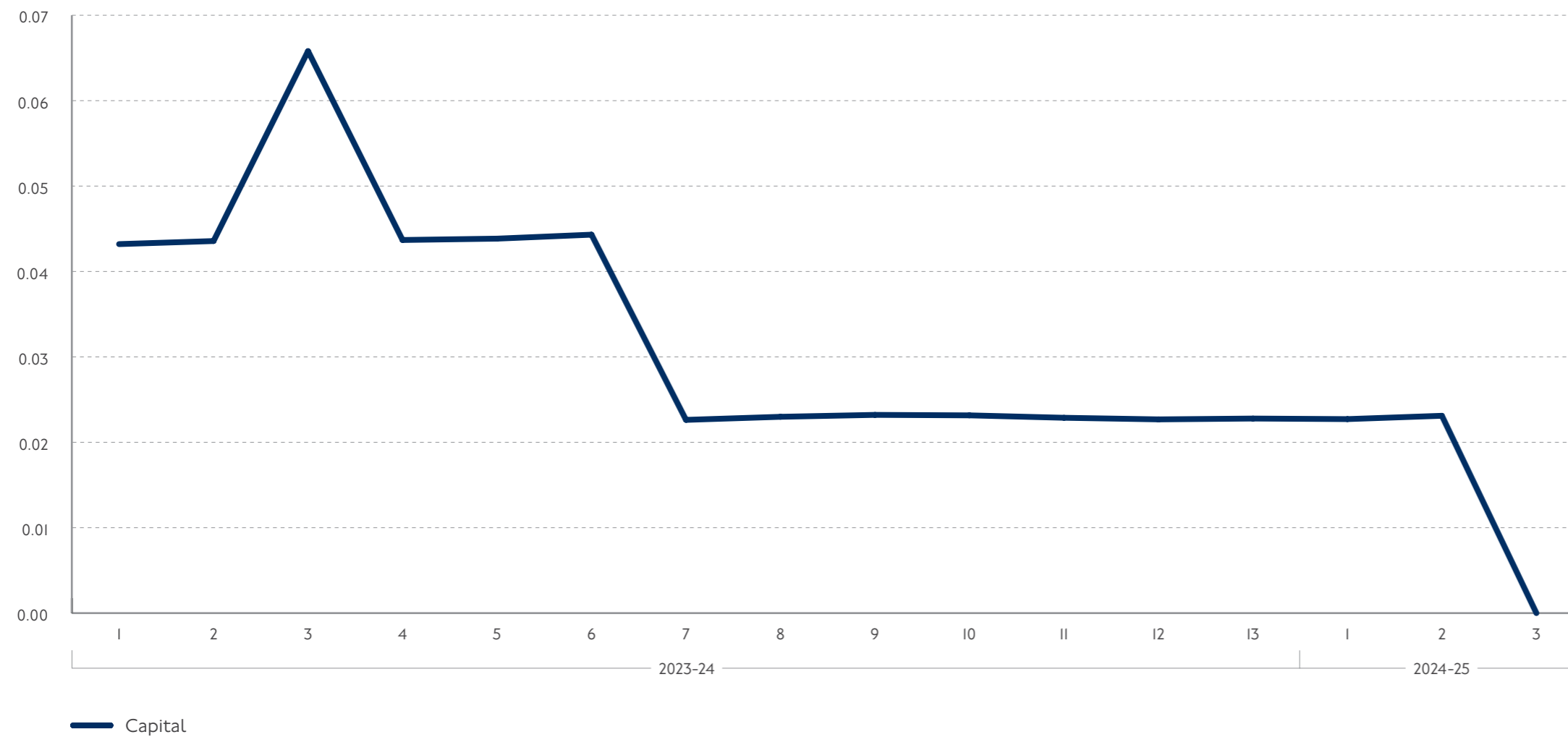
Delivery of the Jubilee line signalling software updates continues. The final software release is currently scheduled for Quarters 3 and 4 2025/26. This depends on successful delivery of the Four Lines Modernisation programme on the Jubilee line taking place in Quarter 2 2024/25. A revised delivery strategy is being considered to enable the Jubilee line signalling software to be delivered in advance of the above dates.

Appendix

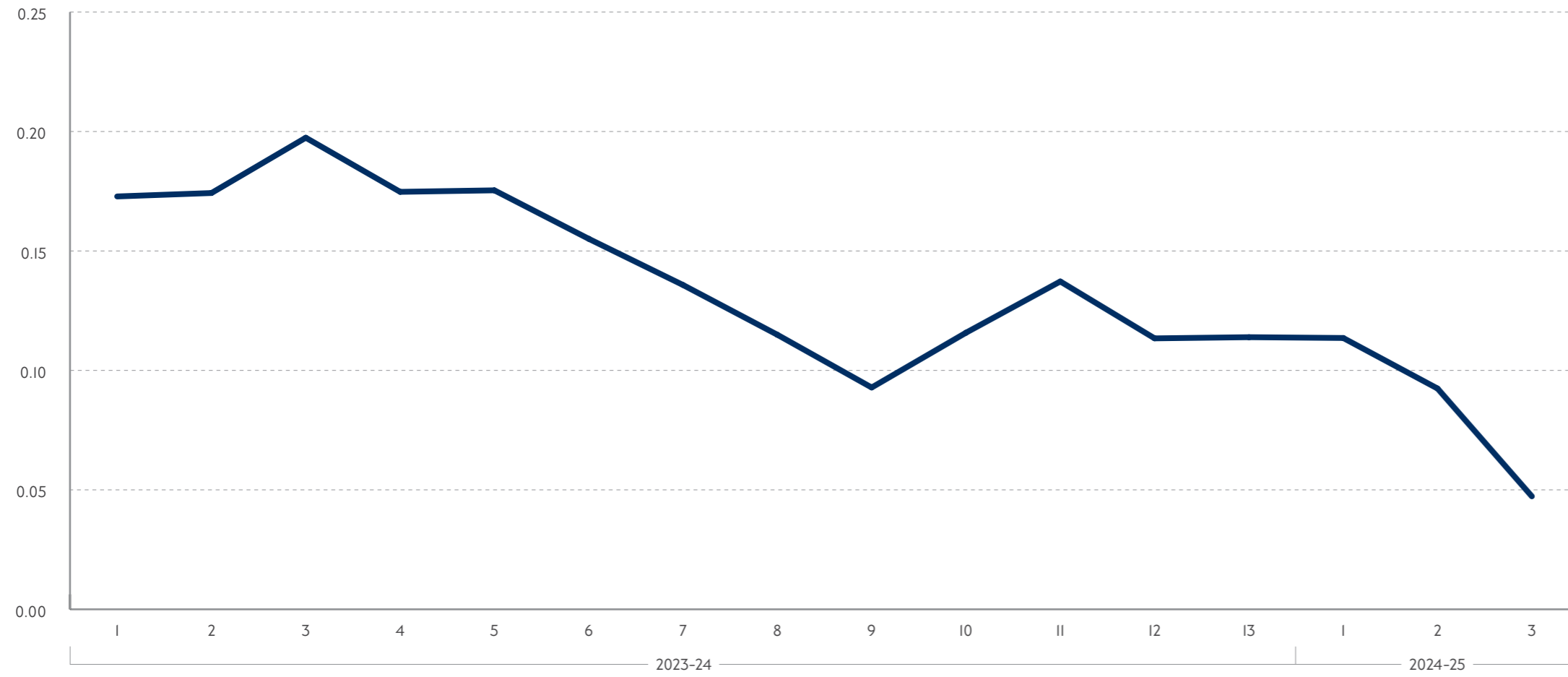
Our safety performance data

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)

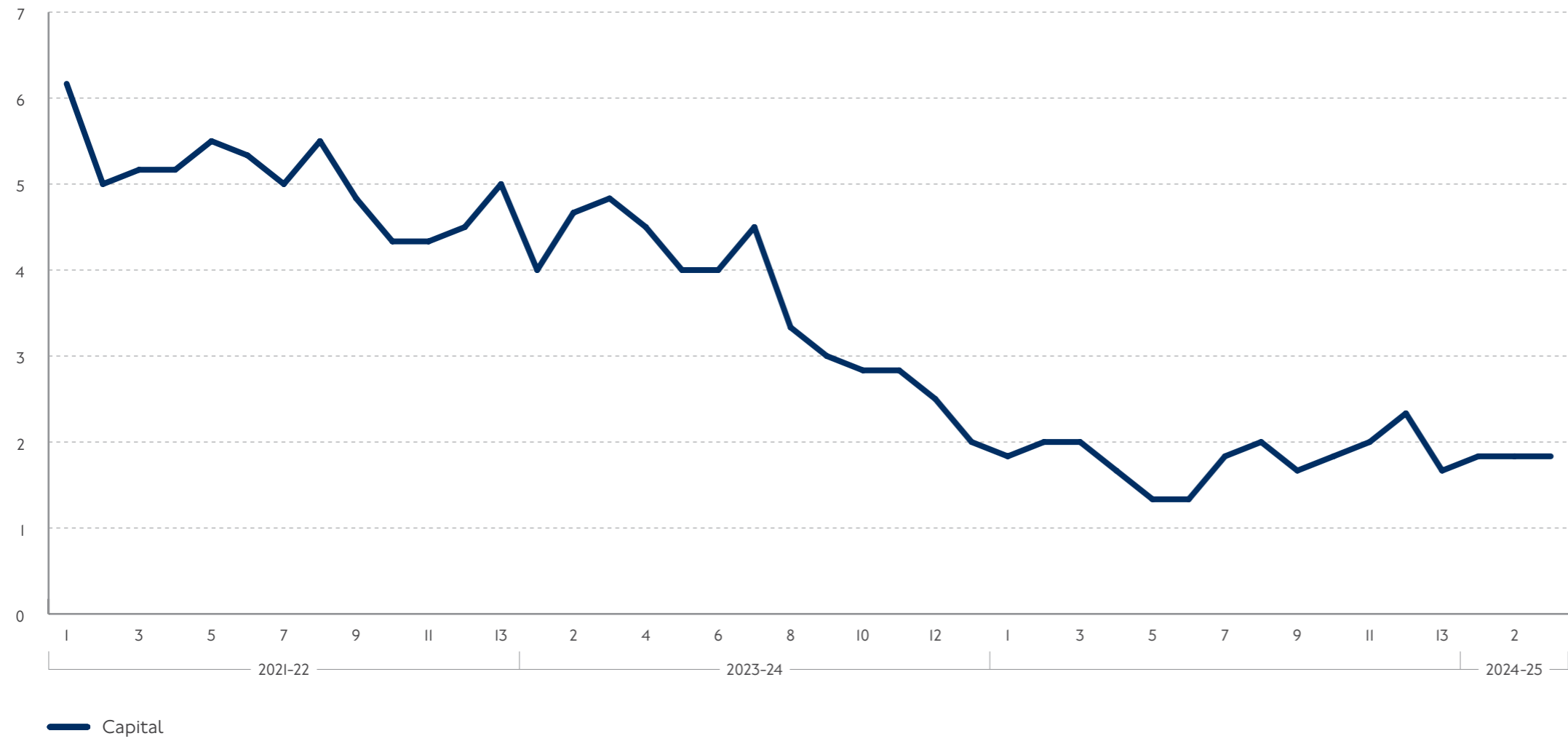


Lost time injury frequency rate
(per 100,000 hours worked)



Capital

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 safety, 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.

We manage the city's red route strategic roads and are responsible for the maintenance, management and operation of more than 6,000 sets of traffic lights across the capital. The London boroughs are responsible for all the remaining roads within their boundaries. The experience, reliability and accessibility of our services are fundamental to Londoners' quality of life. Safety remains our number one priority and we continue to work tirelessly to improve safety across the network for both colleagues and customers.

Our vision is to be a strong, green heartbeat for London. We are investing in green infrastructure, improving walking and cycling, reducing carbon emissions, and making the city's air cleaner. The Ultra Low Emission Zone, and fleets of increasingly environmentally friendly and zero-emission buses, are helping to tackle London's toxic air. We are also improving public transport options, particularly in outer London, to ensure that more people can choose public transport or active travel over using their vehicles.

That is why we are introducing the outer London Superloop bus network, providing express bus routes circling the entire capital, connecting outer London town centres, railway stations, hospitals and transport hubs.

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

The Elizabeth line, which opened in 2022, has quickly become one of the country's most popular railways, adding 10 per cent to central London's rail capacity and supporting new jobs, homes and economic 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 and safe 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 are creating brighter journeys and a better city.

© Transport for London

October 2024

tfl.gov.uk

PUB24_058

Date: 3 October 2024

Item 7: 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's (IIPAG) quarterly report for October 2024. It describes the work undertaken since the last report presented to the Committee in June 2024.
- 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 October 2024 is included as Appendix 1 to this paper.

4 Management Response

Common Themes

Scheduling and schedule performance

- 4.1 The Programme Management Office (PMO) acknowledges the points raised by IIPAG in recent assurance reviews on scheduling and has already begun to put steps in place to improve the overall quality of scheduling across TfL.
- 4.2 A PMO professional lead for planning has been appointed and has implemented first line assurance reviews for the schedules of significant and major projects ahead of key lifecycle stages, re-baselining exercises and deep dives. These reviews focus on the robustness of the integrated schedule and will provide recommendations for improvement.

- 4.3 Additional resource and planning expertise has been allocated to programmes and projects which have been identified as requiring further work to fully integrate schedules and challenge their robustness.
- 4.4 Additionally, TfL planning guidelines will be updated to strengthen guidance on the setting of realistic schedules and the integration of planning with the wider controls environment.

Estimated Final Costs (EFC) and treatment of cost risk

- 4.5 Recommendations relating to EFC maturity are welcomed and have been actioned accordingly in the relevant cases with ongoing discussion with Project Assurance about business areas that have particular scope for improvement in this regard.
- 4.6 The TfL risk management handbook outlines the approach to assessing cost risk on projects. This allows for scaling of the sophistication of the technique based on the characterisation of the project.
- 4.7 All programmes and projects of sufficient complexity will be subject to thorough quantitative risk assessment at key points in the lifecycle and will be supported by the appropriate level of risk expertise.

Capacity/capability of the PMO

- 4.8 The PMO recognises the capacity and capability challenges in some areas. Work is in progress to support improvements through a programme of interventions directed at releasing capacity by automating data and driving consistency of processes pan-TfL. This will allow PMO colleagues to focus on providing independent challenge and insight.
- 4.9 These improvements also require capacity to design and deliver and are constrained by wider cost pressures, which has limited the pace. Positive progress has been achieved but we share IIPAG's view that the outcomes are not being seen in the business at the desired pace. We are mitigating this in two ways:
- (a) reviewing the scope, scale and resourcing of the ongoing improvement programme to focus on the products that will most positively impact projects; and
 - (b) reviewing staff allocations to ensure that the most challenging projects have the right level of support.

Progress on Value for Money (VfM)

- 4.10 VfM is a key area of focus for TfL, and it is welcomed that IIPAG has highlighted the positive work that has been undertaken to make substantial improvements, assisted by the recommendations made in their 2021 review. TfL looks forward to continuing engagement with IIPAG on this important subject.

Cross Cutting Work

- 4.11 TfL welcomes the work IIPAG has undertaken on cross cutting reviews and accepts the recommendations made and looks forward to the outputs from the ongoing reviews for which management responses to the recommendations made will be provided.

List of appendices to this report:

Appendix 1: Independent Investment Programme Advisory Group - Quarterly Report October 2024

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

List of Background Papers:

None

Contact Officer: Andrea Clarke, General Counsel
Email: AndreaClarke@tfl.gov.uk

Independent Investment Programme Advisory Group – Quarterly Report October 2024

1. Introduction

- 1.1. This report to the Committee describes the Independent Investment Programme Advisory Group (IIPAG) activities in July 2024 – August 2024. We have made no new strategic recommendations.

2. IIPAG Activity

- 2.1. We have completed three programme level reviews ahead of the October 2024 Committee:
- a) Piccadilly Line Upgrade (PLU)
 - b) Silvertown Tunnel
 - c) London Underground Renewals
- 2.2. We have also undertaken several projects reviews, and continuous assurance for the Four Lines Modernisation programme.

3. Common Themes

- 3.1. We continue to see professionalism and commitment from project teams, but also some recurring causes of concern. These include:
- a) Scheduling and schedule performance. We have found that a greater level of robustness of integrated baseline schedules is needed for some projects and also noted over-optimism around programme and project delivery, and slippage within project schedules.
 - b) Estimated Final Costs (EFCs) and treatment of cost risk. EFC cost pressures and increases have been seen in a number of cases. We also found EFCs that require updating to accurately reflect the current position with assessment of cost risk also requiring review to ensure the appropriate level of sophistication/maturity.
 - c) Capacity/capability of the Programme Management Office (PMO). We have observed that the PMO is struggling in some cases to provide fully effective project controls support and information due to capacity/capability constraints, and it is therefore unable to provide the 'critical friend/independent view' that is needed. While improvements are in progress, they are not being made at the pace needed.
 - d) Asset condition. As noted in our last report, asset condition is deteriorating across the business. TfL's financial position is the major cause of this, and we have observed that good work is underway to ensure that the available funds are prioritised as well as possible.

4. Cross-cutting work

Review of First and Second Lines of Assurance (LOA1&2)

- 4.1. We have completed our regular report of LOA1&2. This time we focused on the effectiveness of risk management and how assurance contributes to improving risk management. We also reviewed the effectiveness of LOA2, including resourcing and prioritisation, and progress against recommendations from IIPAG's previous reviews.
- 4.2. Progress has been made against the recommendations from the previous IIPAG reviews of LOA1&2, and of risk, though generally these require long term effort, and it is acknowledged that there are opportunities for further improvement.

Review of Pathway Gate Process for Projects

- 4.3. We have also completed our review on the effectiveness of Pathway gates. We found that the Pathway process is a well-established and well-respected project gateway process, that is used across a wide variety of TfL projects including enhancement projects, renewals and technology. However, improvement opportunities exist to ensure a consistent level of scrutiny and challenge.

Progress on Value for Money

- 4.4. We have also completed a review of TfL's progress in implementing the recommendations of our 2021 Review of Value for Money. We were impressed with the substantial improvements that been made across all areas to address our recommendations.

5. Current Cross Cutting Reviews

- 5.1. We have two cross-cutting reviews underway:
 - a) Review of how TfL takes account in the investment programme of targets to reduce carbon emissions.
 - b) Our second piece of work on renewals (following our earlier review of the Delivery of Renewals). This second piece is looking at the earlier stages of prioritisation and workbanks.
- 5.2. We are also considering TfL's progress in implementing the recommendations of IIPAG's review of asset information.

6. Resources

- 6.1. Currently IIPAG is operating with two vacancies (out of seven positions). A recruitment exercise is underway and final interviews will take place in the autumn.

Alison Munro

Chair, IIPAG

September 2024

Date: 3 October 2024

Item 8: TfL Project Assurance Update

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the Project Assurance (PA) work undertaken between 26 May and 17 August 2024 (Period 3 to Period 5 of 2024/25). Three programme reviews were undertaken during this time, with the Independent Investment Programme Advisory Group (IIPAG) involved in all three of them. In the same timeframe 11 project reviews were undertaken, with IIPAG involved in five of these.
- 1.2 These reviews gave rise to a total of 71 recommendations, of which six were considered to be critical issues. Critical issues are those that the PA 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 paper provides the Committee with a summary of the second line assurance, provided by TfL's PA team. It also gives an update on the status of assurance recommendations including those made as part of third line assurance, provided by IIPAG.

4 Summary of Project Assurance Activity

- 4.1 From the reviews undertaken, PA made 47 recommendations, of which five were critical issues. All of the recommendations have been agreed by the project teams concerned.
- 4.2 IIPAG made 24 recommendations, of which one was a critical issue. 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 as at the end of Period 10 2023/24 (ending 6 January 2024), Period 2 2024/25 (ending 25 May 2024) and Period 5 2024/25 (ending 17 August 2024).

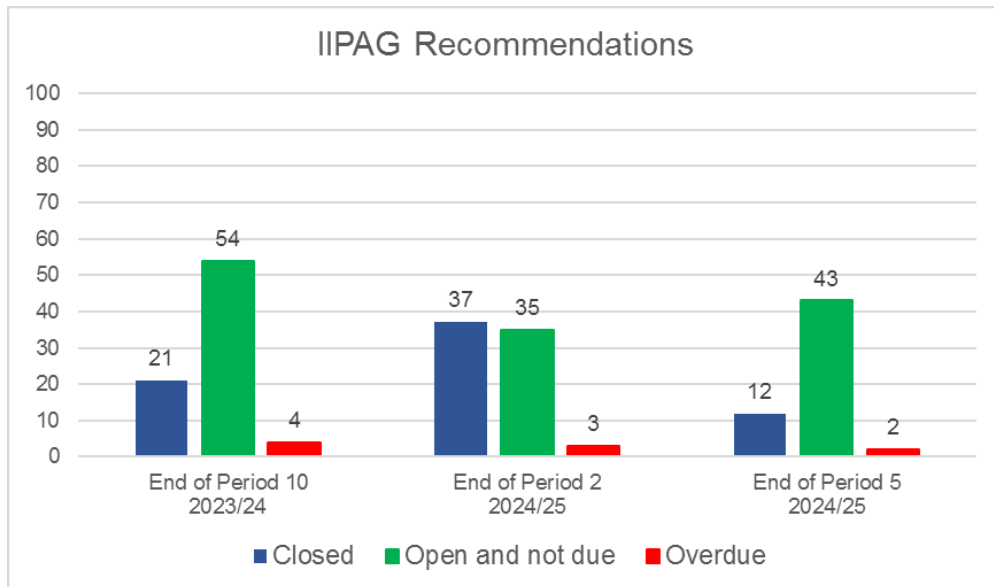


Figure 1: IIPAG Recommendations

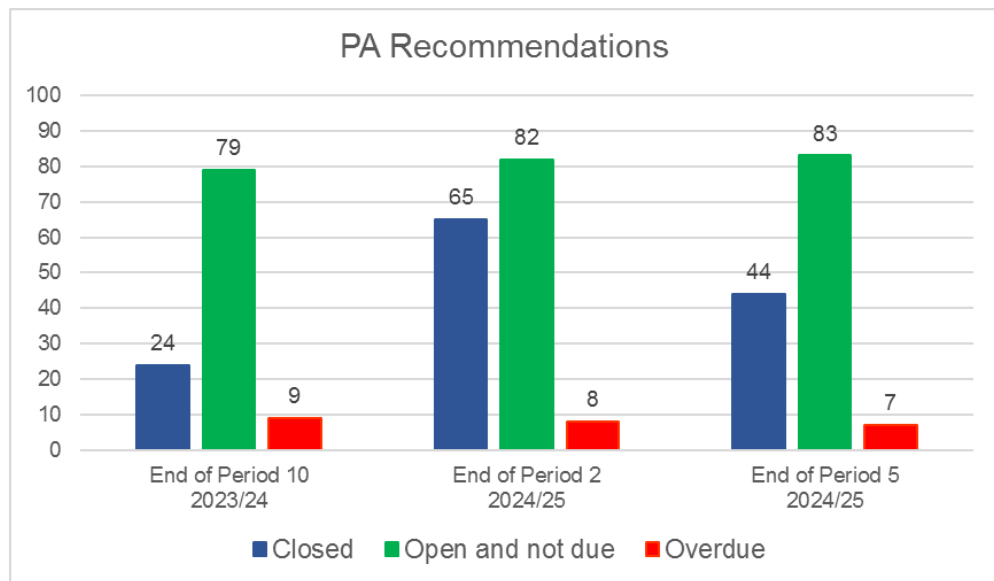


Figure 2: Project Assurance Recommendations

5.2 The following graphs show the length of time that the overdue PA and IIPAG recommendations have been overdue by, as at the end of Period 5, and the Chief Officer area responsible for addressing the recommendations.



Figure 3: Overdue IIPAG Recommendations



Figure 4: Overdue Project Assurance Recommendations

5.3 The following graph shows the number of recommendations made over the last four quarters grouped by recommendation topic. This is shown against the number of recommendations made over the preceding four quarters.

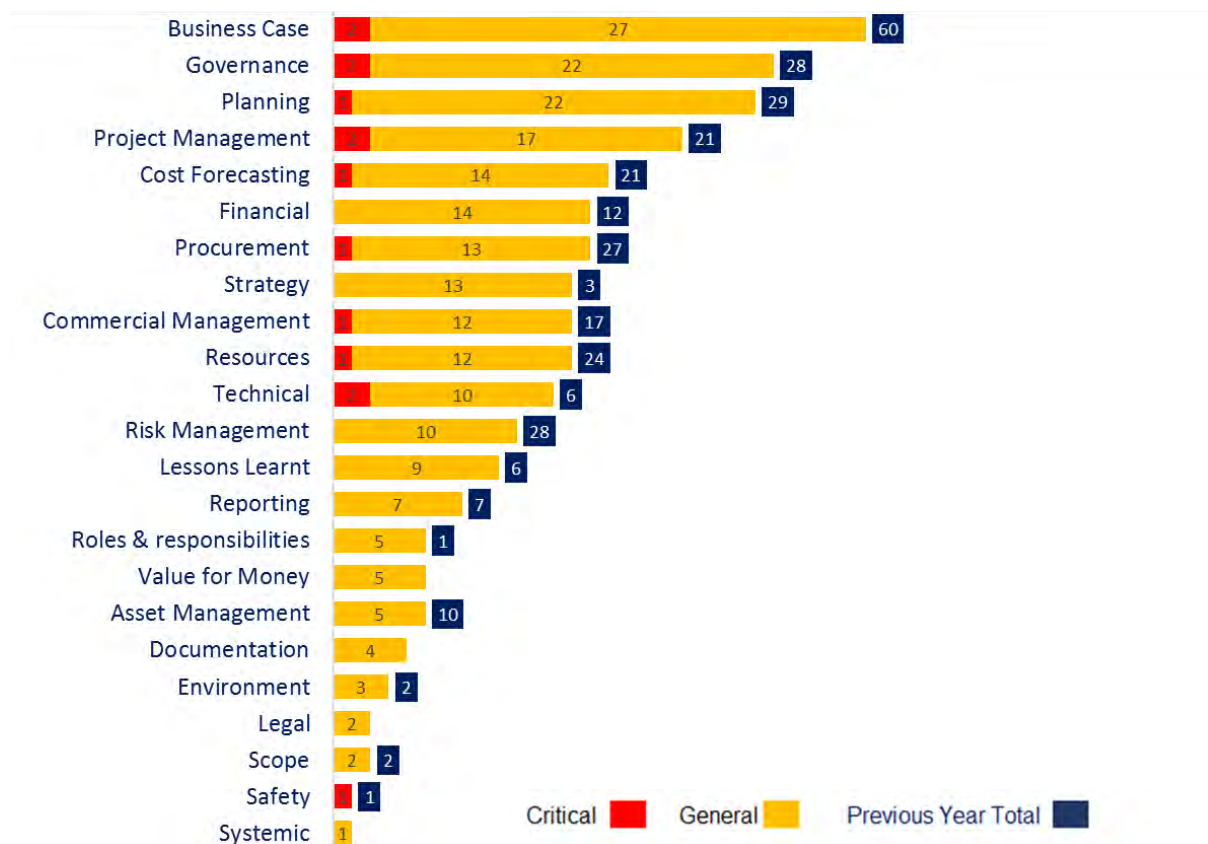


Figure 5: Project Assurance Recommendations by Topic (Totals over last four quarters versus previous year)

List of appendices to this paper:

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

List of background papers:

None

Contact Officer: Andrea Clarke, General Counsel
 Email: AndreaClarke@tfl.gov.uk

Date: 3 October 2024

Item 9: Silvertown Tunnel

This paper will be considered in public

1 Summary

Silvertown Tunnel					
	Existing Financial Authority	Estimated Final Cost (EFC)	Existing Programme and Project Authority	Additional Authority Requested	Total Authority
Gross TfL Direct Costs	£259.5m	£267.3m	£256.0m	£11.3m	£267.3m
Reimbursement	-£79.0m	-£79.6m	-£78.4m*2	-£1.2m	-£79.6m
Net TfL Direct Costs	£180.5m	£187.7m	£177.6m*1	£10.1m	£187.7m

Notes:

*1 TfL Direct Costs comprise all net TfL costs involved in the development of the Scheme, allowing for an amount to be financed by the project company (Riverlinx Limited) and paid back through availability payments. This excludes £4.7m of historical scheme development costs incurred by TfL and held outside the Silvertown Programme and costs for the tunnel user charging which have been transferred to the Road User Charging Programme. The original Programme and Project Authority approval was in respect of net TfL Direct Costs.

*2 Reimbursements comprise of £63m from Riverlinx to cover the costs incurred by the project prior to contract award and £16m for the fee payable by Riverlinx to TfL for access to sections of site.

- 1.1 This paper provides an update on the Silvertown Tunnel Programme (the Scheme) including construction progress from October 2023 to September 2024. It also covers progress on the wider scope of activities underway, and the further approvals requested from the Board to support Scheme opening in 2025.
- 1.2 Supplementary information is included in Part 2 of the agenda for Members. This information is exempt and is therefore not for publication to the public or press by virtue of paragraphs 3 and 5 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and information in respect of which a claim to legal professional privilege could be

maintained in legal proceedings. Any discussion of this 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 paper on Part 2 of the agenda and;**
- (a) approve the transfer of £3.48m Financial Authority and Programme and Project Authority from the Silvertown Tunnel Programme to the Environment Programme;**
 - (b) approve, for the Silvertown Tunnel Programme additional unbudgeted Financial Authority of £7.2m and additional Programme and Project Authority of £10.1m, bringing the total Financial Authority and Programme and Project Authority to £187.7m;**
 - (c) note the matters for which Financial Authority and Programme and Project Authority is sought above include commitments beyond the period of the 2024/25 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 described in the paper will be sought at officer level in accordance with Standing Orders.**

3 Background

- 3.1 The Scheme has been developed to address the significant issues of traffic congestion and unreliability at the Blackwall Tunnel and the consequential effects these have on travel, the environment, the economy and growth across the wider east and south east London area. The Scheme has long been recognised as an essential investment to support the objectives set out in the Mayor's Transport Strategy.
- 3.2 The Scheme consists of a twin bore road tunnel providing a new connection between the Greenwich Peninsula and the Royal Docks. There will be two traffic lanes in each direction with one lane reserved for buses, coaches and heavy goods vehicles (HGVs). New junctions have been constructed to link the tunnels into the existing road network and new portal buildings to house the equipment necessary to operate the tunnels.
- 3.3 To ensure that traffic levels are managed and that the benefits of the Scheme are secured for the long term, a user charge will be implemented at both Silvertown and Blackwall Tunnels. The user charge will be an effective mechanism for suppressing induced traffic, and the revenue from the charge will also help pay for the Scheme.

- 3.4 The Secretary of State for Transport designated the Scheme a Nationally Significant Infrastructure Project in 2012 and granted a Development Consent Order (DCO) on 10 May 2018 which provided us the powers to construct and operate the Scheme, including the powers to introduce road user charging at both the Silvertown and Blackwall Tunnels.
- 3.5 In May 2019, the Committee agreed the relevant Authorities to enable the award of the contract to design, build, finance and maintain the tunnel and the contract was subsequently awarded to the Riverlinx consortium in November 2019. The Committee has been updated on progress at regular intervals since then, and this paper provides the latest update on Scheme progress including a lookahead to Scheme opening in less than one year.

4 Riverlinx Progress and Performance

Safety, Health and Environment

- 4.1 Despite Riverlinx holding the principal responsibilities and duties for safety, health and environment across their site, the project team continue to actively monitor their performance in this area as a priority. The project team attend the weekly Health and Safety meeting with Riverlinx and are actively engaged in any incident reviews that take place.
- 4.2 The project team also review Riverlinx efforts to reduce and manage the environmental impacts of the construction works in line with our contract requirements and relevant policy. For example, there has been continued use of the river to transport materials, with more than 1.7 million tonnes of material transported by river to date. This equates to more than 70 per cent of all materials associated with construction and means that more than 100,000 HGV journeys on the road network have been avoided.

Jobs, Skills, Inclusion

- 4.3 In line with TfL's contractual requirements, Riverlinx drives a positive legacy of the Scheme as a construction project through significant opportunities for employment and training for local people. To date, more than 129 apprenticeships and graduate opportunities have been provided (24 across the three local boroughs of Greenwich, Newham and Tower Hamlets), as well as offering more than 1,500 days of work experience. Job opportunities have been created for 169 people who were previously unemployed, with 44 of these opportunities secured by residents in the three local boroughs. Riverlinx has also delivered several educational activities in the local area and have collaborated with Andy's Man Club charity to deliver a mental health awareness day. Riverlinx continue to work with Inspire, Construction Youth Trust and The Switch to support local schools' sessions.

Design and Construction

- 4.4 The design is progressing with the final packages of systems and landscaping being completed while design comments, site constraints and construction changes are now all being incorporated into either issue for construction designs or as-built information for handover.
- 4.5 At Silvertown, land reinstatement works are nearing completion and the project is in the advanced stages of landscaping activities. Works to complete the new realigned Dock Road are progressing well and Tidal Basin Roundabout has entered its final configuration for road traffic, with activities to bring pedestrian footways and cycle ways into full use progressing well. In Greenwich, similar progress is being made on landscaping and land reinstatement works. The A102 highways works are nearing completion following a series of planned closures to allow the installation of key assets including variable message signage.
- 4.6 The tunnel and service buildings are in the developed stage of fit out, with ventilation, lighting and critical fire safety systems installed and undergoing testing and commissioning.
- 4.7 Over the last year, there have been several productive weekend closures of the Blackwall Tunnel to help implement the final road layout for the new Silvertown Tunnel on the A102 road approach. The last gantry was installed in May this year, and drainage works continue along with road resurfacing. Safety barrier installation has also commenced. Fit out works are progressing at both portal buildings with the scaffolding coming down and final exterior finishes being installed.

5 TfL Scope

- 5.1 In addition to oversight of the agreement with Riverlinx to design, build, finance and maintain the new tunnel, TfL holds several direct responsibilities to enable the opening of the Scheme and ensure its benefits are realised.

Land Acquisition

- 5.2 All land required for the Operational and Maintenance phase has been permanently acquired. In terms of temporary land, while TfL's works currently occupy a significant area, particularly on the north side of the river, TfL is beginning to take this back from Riverlinx and return it to permanent landowners ready for redevelopment. This includes parts of the planned Thameside West development in Silvertown.

Securing the Scheme's Benefits

- 5.3 TfL has been completing the refreshed assessment modelling to inform the initial road user charges and the required local highway mitigations.
- 5.4 Local highway mitigation measures were agreed with relevant stakeholders and our approach to delivering them signed off by the Secretary of State in January 2024. Highway mitigation works are currently being constructed at three locations and will be completed in time for tunnel opening in spring 2025.

- 5.5 TfL is continuing to undertake a range of baseline monitoring to ensure it has up-to-date information of traffic, air quality and socio-economic conditions before tunnel opening. Results are publicly available on our website at www.Tfl.gov.uk/travel-information/improvements-and-projects/silvertown-tunnel-implementation-group.
- 5.6 This monitoring will continue for a minimum of three years after the tunnel opens to demonstrate the Scheme's impacts in operation. TfL's monitoring plans are supported by extensive consultation through the Silvertown Tunnel Implementation Group (STIG) which includes representatives from 12 London boroughs, alongside the Greater London Authority and National Highways.

Tunnels User Charging

- 5.7 A public and stakeholder consultation on the proposed level of charges along with the proposed discounts and exemptions was held between 10 July and 3 September 2024. STIG was also consulted in this period in accordance with the DCO requirement. The proposals are attached in Appendix 1.
- 5.8 TfL is currently reviewing responses and will use them to inform a submission to the Board planned in December 2024. Approval from the Board is required to set the level of charges, discounts and exemptions. The Statement of Charges which sets out the rules of the Tunnel User Charging scheme must be published not later than 56 days in advance of charges applying.
- 5.9 At least 56 days before tunnel opening, TfL will also start on-line registration for new payment accounts and discount applications. Current users of the Auto Pay system operated for our other charging schemes will have their existing data automatically populated to save them time inputting payment and vehicle information.

Green and Fair Package

- 5.10 To help residents and businesses, and to support people using our new public transport connections, TfL has proposed a package of green and fair measures, including a wide range of concessions and discounts.
- 5.11 These include:
- (a) all buses, coaches and vehicles with nine seats or more registered with the Driver Vehicle and Licensing Authority would automatically be exempt from Silvertown and Blackwall Tunnel charges;
 - (b) all taxis, blue badge holders, and wheelchair-accessible private hire vehicles registered with TfL would be exempt. 'Zero-Emission Capable' private hire vehicles licensed by TfL – which currently make up at least 40 per cent of the 93,000 fleet – would also be exempt;
 - (c) tunnel charges would also be reimbursed to NHS staff and patients eligible through the NHS reimbursement scheme and vehicles registered under the Accredited Breakdown / Recovery vehicle discount would not have to pay a charge;

- (d) a 50 per cent discount would be available for low-income drivers in 12 east and south east London boroughs and the City of London, as well as a £1 discount on the standard off-peak charge for at least one year for small businesses, sole traders and charities registered in Tower Hamlets, Newham and Greenwich;
- (e) bus journeys made on three cross-river routes as well as cross-river journeys on the DLR from Cutty Sark to Island Gardens, and from Woolwich Arsenal to King George V will be free for at least one year. This will support local residents and help encourage people to cross the Thames by public transport; and
- (f) the 'cycle shuttle' service, which TfL consulted on in summer 2023, will allow people with bikes to safely cross the river via a high frequency bus service for cyclists between Silvertown and North Greenwich. This service would be free to use for at least the first year

Cross-river bus services

- 5.12 Since announcing the Silvertown Tunnel opening bus network in 2023, TfL has been progressing plans to ensure this new network of three routes (the existing route 108 using Blackwall Tunnel, extending existing route 129 from North Greenwich to Great Eastern Quay via City Airport, and the new Superloop route SL4) is ready for tunnel opening in 2025. The network will operate from 6am to midnight, seven days a week, with 21 buses an hour in each direction during the busiest times (between 7am to 7pm Monday to Friday). This is an increase from the current five buses an hour able to cross the river in this area.
- 5.13 When the tunnel opens all the buses in the cross-river bus network will be zero-emission at the tailpipe. Since awarding the contract to Go-Ahead London for the operation of these services, TfL has been working on plans to electrify depots to enable the zero-emission buses to be ready for service at Scheme opening in 2025.
- 5.14 Elsewhere, TfL has been planning infrastructure work at the start and end of the SL4 and 129 bus routes to enable bus standing, appropriate driver welfare and customer facilities, as well as progressing design work for the new bus stop on Dock Road on route 129.

Cross-river cycling service

- 5.15 In July 2024 TfL published our public consultation response on cross-river cycling options. TfL concluded a cycle shuttle bus was the most suitable provision for cyclists to cross the river in the vicinity of the new tunnel. TfL will run a high frequency service from Greenwich Peninsula to Royal Victoria Dock, seven days a week from 6.30am to 9.30pm. The vehicles will be zero-emission and deliver high standards of accessibility to cater for disabled and adapted cycles as well as domestic cargo bikes.
- 5.16 To prepare for the cycle shuttle service, TfL is working towards the provision of appropriate supporting infrastructure such as bus stops, shelters, and driver toilets as well as appointing a suitable operator to run the service on TfL's behalf.

- 5.17 The service will operate for a minimum of three years and will be free for at least the first 12 months to encourage take up of the service. TfL plans to collect data on usage of the cycle shuttle service which will help inform decisions on the future of the service after the initial three years.

Wider TfL Scope

- 5.18 Other TfL activities underway to support implementation of the Scheme include wider highway improvements including signage changes, modifications to TfL's control centres, and other specific obligations under the DCO such as the construction of an additional noise barrier along the A102. These activities are progressing to plan ensuring the Scheme can open in 2025.
- 5.19 TfL is also planning a comprehensive marketing and communications campaign to ensure customers are informed of the tunnel opening and associated information on bus services, user charges, discounts, exemptions and other matters, including the green and fair package of measures described above.

6 Financial Implications

- 6.1 Most of the Scheme costs are privately financed by Riverlinx who takes the majority of risk associated with design and construction and responsibility for any associated cost overruns. In return, we will pay Riverlinx "Availability Payments" over 25 years following Scheme opening, subject to their performance in maintaining the new tunnels. No change to the Authorities previously approved by the Committee in respect of the Availability Payments is being requested.
- 6.2 The immediate "TfL Direct Costs" associated with the Scheme fund the activities which TfL delivers. Like much of TfL's Investment Programme, there have been significant cost pressures on the TfL Direct Costs including inflation rises and the impacts of the coronavirus pandemic. TfL has taken steps to offset many of these cost increases through effective management of the programme and has secured several savings opportunities including through risk mitigation.
- 6.3 However, as the end of site activity approaches, there are limited opportunities for any significant reductions and increased Programme and Project Authority is being requested in line with our current estimated final cost (EFC). The EFC is £187.7m compared with existing Programme and Project Authority of £177.6m.
- 6.4 Alongside this, it is also proposed to transfer £3.48m to another programme within TfL that is best placed to deliver elements of specialised services for the scheme. This results in a corresponding decrease to EFC and Programme and Project Authority.
- 6.5 Further details on these costs and the commercial and financial performance of the Scheme are set out in the paper on Part 2 of the agenda.

7 Project Assurance

- 7.1 In support of this update to the Committee, an Integrated Assurance Review was carried out between the project team, TfL Project Assurance and the Independent Investment Programme Advisory Group, supported by an External Expert review.
- 7.2 The review identified no critical issues and provided two recommendations which have both been responded to. One of the recommendations was mirrored by the External Expert. The reports have been provided to the Committee as background to this paper.

List of appendices to this report:

Appendix 1: Tunnel User Charges, discounts, exemptions and reimbursements
Appendix 2: Permanent Scheme Design
Appendix 3: Construction Progress

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

List of Background Papers:

IIPAG and TfL Project Assurance Report
Management response to IIPAG and TfL Project Assurance Reports
Programmes and Investment Committee - Paper for Silvertown Tunnel 15 May 2019

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

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

Appendix 1: Tunnel User Charges, discounts, exemptions and reimbursements

Image 1 – Proposed Level of Tunnel User Charges

Silvertown and Blackwall User Charges – 6am to 10pm			
	Charges paid via Auto Pay		Charges paid via other channels
	Standard off-peak charges	Peak charges Mon-Fri only <i>Northbound 6am - 10am</i> <i>Southbound 4pm - 7pm</i>	At all times
Motorcycle, moped, motor tricycle	£1.50	£2.50	£2.50
Car and small van	£1.50	£4.00	£4.00
Large van	£2.50	£6.50	£6.50
Heavy Goods Vehicles	£5.00	£10.00	£10.00
Penalty Charge Notice for non-payment - £180 (Reduced to £90 if paid within two weeks; maximum one PCN per day)			

Image 2 – Proposed Discounts, Exemptions and Reimbursements

Discounts, exemptions and reimbursements	Eligibility Criteria
50 per cent Discount	
East London low-income residents' discount (for a period of at least three years)	To qualify individuals must live within an east London borough ² and be in receipt of certain benefits ³ .
100 per cent Discount	
Recovery and breakdown vehicles	This discount applies to recovery and breakdown vehicles operated by organisations in the European Economic Area that are accredited to BS EN ISO9001:2008 (and in accordance with the specification for applying that standard to the industry).
Vehicles with 9+ seats	This discount applies to vehicles with nine seats or more (vehicles registered with the DVLA as a minibus, bus or coach would automatically receive a discount and would not need to apply for the discount).
Blue Badge holders	This discount applies to individuals who hold a valid Blue Badge in the European Economic Area. Individuals can register up to two vehicles to travel though Silvertown or Blackwall Tunnels. This could be their own vehicle, or one they travel in.
Certain operational vehicles used by the host boroughs ⁴	This discount applies to qualifying organisations that operate vehicles performing essential public services. The eligibility is determined by TfL.
Zero-Emission Capable and Wheelchair Accessible private hire vehicles (PHVs)	This discount applies to PHVs designated as wheelchair-accessible vehicles or zero emission capable as long as they are fulfilling a private

² London Borough (LB) Barking & Dagenham, LB Bexley, LB Bromley, City of London Corporation, Royal Borough (RB) Greenwich, LB Hackney, LB Havering, LB Lewisham, LB Newham, LB Redbridge, LB Southwark, LB Tower Hamlets, LB Waltham Forest

³ Carer's Allowance, Child Tax Credit, Housing Benefit, Income-related Employment & Support Allowance, Income-based Jobseekers Allowance, Income Support, Universal Credit, State Pension Credit, Working Tax Credit

⁴ LB Newham, LB Tower Hamlets and RB Greenwich

Discounts, exemptions and reimbursements	Eligibility Criteria
	hire booking. They must also be actively licensed with London Taxi and Private Hire.
£1 discount business discount on standard off-peak charges	
Business discount (for a period of at least 12 months)	Eligible small businesses, sole traders and charities based in the host boroughs can register a maximum of three vehicles to receive a £1 discount on standard off-peak charges.
Exemptions	
Taxis	This exemption applies to taxis which are actively licensed with London Taxi and Private Hire.
Emergency services vehicles	This exemption applies to emergency service vehicles, including ambulances, police vehicles and fire engines, which have a taxation class of 'ambulance', 'police vehicle' or 'fire engine' on the date of travel.
NHS vehicles exempt from vehicle tax	This exemption applies to NHS vehicles that are exempt from vehicle tax.
Vehicles in the disabled tax class	This exemption applies to vehicles used by disabled people that are exempt from vehicle tax and have a 'disabled' taxation class.
Military vehicles in use	This exemption applies to vehicles currently used by the armed forces including visiting services or international organisations.
Reimbursements⁵	
NHS Patient Reimbursement ⁶	NHS patients are eligible for reimbursement if: 1. Clinically assessed as too ill, weak or disabled to travel to an appointment on public transport, and any of following apply:

⁵ Before making a claim for reimbursement, the user charge must be paid on or before the day of your journey, or the vehicle used for the journey must be registered for a TfL Auto Pay account.

⁶ The NHS trust or hospital must be registered with TfL for the reimbursement scheme. Any refund request should be made through the NHS trust or hospital as they manage the reimbursement process, not TfL.

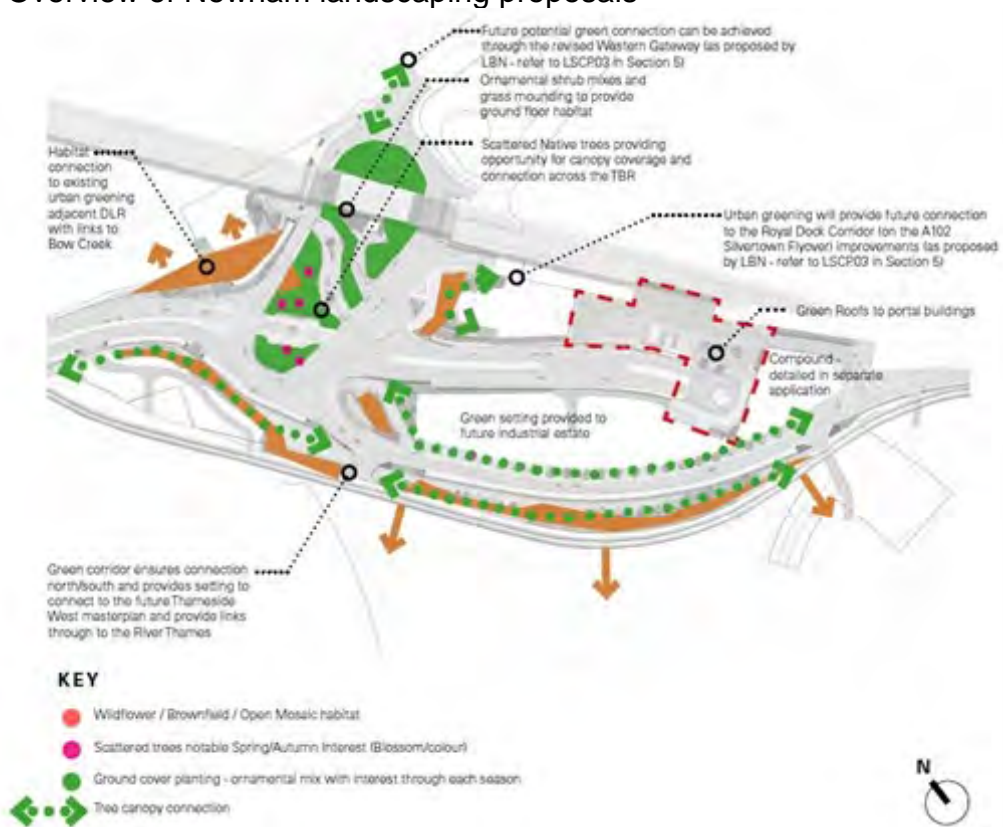
Discounts, exemptions and reimbursements	Eligibility Criteria
	<ul style="list-style-type: none"> • Have a compromised immune system (problems with your immune system) • Require regular therapy or assessment • Require recurrent surgical intervention <p>OR</p> <p>2. During an epidemic or pandemic prevalent in Greater London, are clinically assessed as being too vulnerable to infection to travel to an appointment on public transport.</p>
NHS Staff Reimbursement	<p>NHS staff members, are eligible for reimbursement if any of the following criteria is met:</p> <p>1. Those using their vehicles to carry any of the following:</p> <ul style="list-style-type: none"> • Bulky, heavy or fragile equipment/supplies • Patients' notes or other confidential material • Controlled drugs • Clinical waste, contaminated sharps, radioactive materials or non-medicinal poisons • Prescription-only medicines or waste medicinal products • Clinical specimens, body fluids, tissues or organs <p>OR</p> <p>2. Those responding to an emergency when on call.</p>

Appendix 2: Permanent Scheme Design

Image 3 - Overview of Greenwich landscaping proposals



Image 4 - Overview of Newham landscaping proposals



Appendix 3: Construction Progress

Image 5 - Inside the Tunnel with mechanical and electrical equipment installed



Image 6 - View of Greenwich Portal and Tie-ins to A102



Image 7 - Silvertown portal building and north approach roads



Date: 3 October 2024

Item 10: Piccadilly Line Upgrade - Stage 1 Progress Update

This paper will be considered in public

Piccadilly Line Upgrade (PLU) – Stage 1				
Existing Financial Authority	Estimated Final Cost (EFC)	Existing Programme and Project Authority	Additional Authority Requested	Total Authority
£ 2,404.8m	£3,036m	£ 2,994m	£ Nil	£ 2,994m
(£ 2,436.7m)	(£ 3,050m)			

(Note: figures in brackets reflect the position in October 2023)

1 Summary

- 1.1 This paper provides an update to the Committee on delivery progress of Stage 1 of the London Underground (LU) Piccadilly Line Upgrade Programme (PLU). This follows the project’s authorisation in May 2018, and the previous annual update in October 2023.
- 1.2 Supplementary information is included in Part 2 of the agenda for Members. This information is exempt and is therefore not for publication to the public or press 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.

2 Recommendation

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

3 Background

- 3.1 The Piccadilly line contributes more than 10 per cent of LU’s total ridership and provides key transport links between north and west London, serving Heathrow Airport, the West End and St Pancras International station.
- 3.2 Prior to the coronavirus pandemic, significant crowding was already prevalent on the Piccadilly line due to the capacity constraints of the existing trains and signalling. With Tube demand now recovering, peak crowding is returning to pre-pandemic levels and is expected to increase further as population and employment grow with economic recovery.
- 3.3 The PLU is core to the Mayor’s Transport Strategy, enabling increased public transport capacity, more environmentally-friendly services that contribute to carbon reduction, and a more pleasant customer experience – which will

contribute to mode shift. PLU Stage 1 and the (currently unfunded) Stage 2 signalling upgrade will enable wider economic growth, both in London and across the UK through the supply chain.

- 3.4 Upgrading the Piccadilly line remains a key priority for us due to very high levels of historical and projected demand, the age and condition of the existing rolling stock, and the inherent capacity constraints of the existing signalling system and limited fleet size. The existing rolling stock fleet on the Piccadilly line was introduced in the mid-1970s and is approaching 50 years old.
- 3.5 The PLU aims to replace the life-expired trains and signalling systems, as well as maximise capacity on the Piccadilly line to meet existing and future demand. The PLU is scheduled to be delivered in two key stages:
 - (a) Stage 1 – Infrastructure upgrades and enabling works to support the introduction of 94 new trains to replace the existing rolling stock fleet and enable timetable improvements with the existing signalling system; and
 - (b) Stage 2 – Replacement of the existing signalling system and procurement of up to 18 additional new trains to enable higher frequency services with highly reliable automatic train operation (currently unfunded)
- 3.6 In May 2018, the Committee approved:
 - (a) Programme and Project Authority of £3,294m for the procurement of new rolling stock and associated infrastructure enabling works for the introduction of new trains on the Piccadilly line; and
 - (b) Procurement Authority of £1,657m for the award of a contract for the design, manufacture, and supply of 94 new Piccadilly line trains to Siemens Mobility Limited (SML) with a Fleet Services Agreement for whole life maintenance support
- 3.7 In July 2021, the overall Programme and Project Authority was reduced by £300m, from £3,294m to a total of £2,994m to reflect the progressive maturity of the scope and design for Stage 1 of the PLU since May 2018.
- 3.8 During 2020/21 the TfL Business Plan and Budget experienced severe financial pressure following the impact the coronavirus pandemic on ridership and revenues. This disruption impacted the delivery of PLU Stage 1 and the schedule for introduction of the new trains. The introduction of lockdown restrictions severely disrupted the continuity and availability of both our own and supply chain resources, restricting physical progress across our capital delivery programme. For the PLU, while the trains contract was able to deliver to schedule, the planned commencement of LU infrastructure upgrading and enabling works was deferred by six months.

- 3.9 As reported to the Committee in October 2023, delivery of the PLU has also faced other challenges, including the emergence of significant unforeseen inflationary and supply market pressures. These have driven both schedule and cost pressures, particularly in the delivery of the infrastructure enabling works required for the operation and maintenance of new trains. Since October 2023, the Committee has been regularly updated (through the Investment Programme Report updates) on the PLU progress and challenges faced, including the latest schedule and cost position. Despite these challenges, the introduction of the new trains to service remains on target for late-2025.
- 3.10 The EFC currently exceeds Programme and Project Authority by £42m, which is an improved position by comparison to October 2023 (£56m). An increase in Authority is not being sought at this time as by the end of 2024/25 we will have a better understanding of the performance of the new train on our railway, and a higher level of confidence of the schedule and costs for completion of upgraded maintenance facilities and track environment works at the depots. After these events we will have greater confidence in our estimated costs to the end of the Programme and it is then expected that the Programme EFC will be returned to within the current Programme and Project Authority.
- 3.11 This paper provides a summary of progress achieved since October 2023 and the measures being pursued to reduce the schedule risks for train introduction.

4 Progress update and challenges

- 4.1 Since the previous report in October 2023, the PLU team and our supply chain partners have made significant further progress towards delivery of Stage 1 of the PLU. Enabling works are well-advanced across the Piccadilly line to prepare the railway infrastructure and systems for the testing and introduction of the new trains to passenger service from late-2025.
- 4.2 Key achievements since October 2023 include the construction of three new stabling and reversing sidings at Northfields to facilitate the depot upgrades and train service enhancements. Major track replacement works in the Arnos Grove area during a recent extended closure of the line between Wood Green and Cockfosters have been co-ordinated with PLU depots and infrastructure enabling works. Platform improvements have also been completed during this closure opportunity to optimise the Platform to Train Interface (PTI) for the new trains.
- 4.3 The first packages of power upgrade works have also been completed to enhance the capability of the traction power supply and distribution system to meet the demand requirements for the new trains and service enhancements.

New Trains

- 4.4 The new fleet of 94 higher capacity Siemens trains will be accessible with facilities to accommodate four wheelchairs on each train. The trains feature walk-through interiors, saloon air-conditioning (for the first time on a deep Tube train) and all-double doorways to improve boarding and alighting. Modern audio/visual communication systems include digital display screens for real time customer information and advertising, and in-car cameras for improved customer security.

- 4.5 In December 2023, agreement was reached with SML to reschedule new train deliveries to better align with the availability of depot and infrastructure enabling works. This change was also reflected in a re-phasing of the payment profile under the contract to enable a re-balancing of the TfL Business Plan in line with TfL's funding settlement for 2024/25. The revised schedule agreed with SML was endorsed by the Finance Committee at its meeting on 22 December 2023, to which all Members of this Committee were invited, where it was also confirmed that despite the train production schedule being extended by 12 months, the first train would still be delivered to London in 2024, entering service in 2025. The planned timetable frequency increase to 27 trains per hour is still expected to be achieved by May 2028.
- 4.6 The manufacturing contract with SML is progressing well, with the first two fully assembled trains continuing to undergo a comprehensive programme of pre-delivery performance and reliability proving trials at Siemens' Test and Validation Centre in Wildenrath, Germany. This has included climatic chamber testing to evaluate the performance of on-board systems under extreme temperature conditions and tests to assess vehicle sway characteristics and fully-loaded traction and braking performance. Results to date have been very positive with performance of the new train fully matching technical specification requirements and performance expectations. Visits have taken place to the test facility by operations and maintenance staff to carry out initial familiarisation and training prior to delivery of the trains to London.
- 4.7 Series train production has commenced with 13 trains currently in manufacture in Vienna. The first train for delivery to London is at Wildenrath for routine test ahead of transfer to London. The rephasing of the train delivery schedule and timing of payments agreed under the contract with SML has not affected the delivery by rail of the first train to London, which is due later this year in readiness for testing on the network. The first two production trains are currently in manufacture at Siemens' new facility in Goole, Yorkshire. The revised schedule means that up to 80 per cent of the new Piccadilly line trains will now be built in the UK at Goole, surpassing the 50 per cent originally planned.

Infrastructure enabling

- 4.8 The first major work packages are progressing under the PLU High Voltage (HV) Power framework. Civil infrastructure enabling works have been completed at Cockfosters sub-station in readiness for the first stage of HV equipment installation which will include change over and subsequent decommissioning of existing switchgear and equipment. Civil enabling works have also commenced at Northfields sub-station. Work at both sites is in support of the upgrades to the train maintenance depots and the expansion of train stabling facilities for the new fleet.
- 4.9 Surveys and design work are nearing completion to provide additional HV power system capacity at various sub-station locations with civil construction due to commence shortly. Detailed designs are also nearing completion for numerous trackside cabling routes.
- 4.10 Surveys and designs have progressed for extensions at two sub-stations at the West of the line and procurement of the next batch of power system upgrades

works is underway.

- 4.11 The existing Piccadilly line signalling system is being modified to ensure compatibility with the new trains. The repositioning of lineside signals and installation of additional signal indicators to ensure visibility from the new, longer trains is now 45 per cent complete. Additionally, track circuits for train detection are being replaced and immunisation work undertaken between South Harrow and North Ealing to ensure the existing safety signalling system is not affected by electro-magnetic interference from the new trains. This installation work is now 75 per cent complete, and final commissioning will take place following completion of a new 600V power supply system in spring 2025.
- 4.12 Work is underway on a line-wide programme of infrastructure clearance and gauging infringements removal to ensure the railway is fully compatible with the new train design. This work is being progressed in line with the migration schedule for the delivery and testing of the new trains and to enable the earliest transfer of new trains for stabling and the commencement of staff training.
- 4.13 As part of a line-wide programme of infrastructure clearance and gauging works, targeted adjustments are being carried out at selected platforms in readiness for the new trains. The partial line closure between Wood Green and Cockfosters in August 2024 enabled platform modification works to be carried out in conjunction with the planned Track replacement at Arnos Grove to improve accessibility to the new trains when introduced.
- 4.14 Development for the new One Person Operation Closed Circuit TV (OPO CCTV) system is in the final stages with a full functionality version currently undergoing acceptance testing. The first batch of train-borne equipment manufacture is now complete. Station system design and installation works are progressing across the Piccadilly line, including the provision of new communication equipment rooms and platform stopping markers. This system will improve safety through transmission of high-quality digital images of the PTI to the train operator and the line control centre to ensure the safe departure of the train from the platform.

Depots and Stabling

- 4.15 Modifications are nearing completion to provide initial facilities and equipment for the maintenance of the first new trains within the existing depots. This has included provision of specialised train lifting jacks to match the design of the new trains which require the synchronised lifting of the whole train.
- 4.16 The construction of three new stabling and reversing sidings at Northfields is substantially complete with final commissioning planned for October 2024. This will augment stabling capacity on the line and facilitate the extensive upgrade works to train maintenance facilities at Northfields depot.
- 4.17 At Cockfosters depot, site preparation and enabling works are underway for the construction of a new wheel turning facility for the new trains. A new under-floor wheel-lathe has been procured and a contract has been awarded for building construction. This new construction forms the first stage of the upgrade works for the depot to provide the modernised maintenance, servicing and stabling facilities needed for the new fleet.

- 4.18 The first of two new driving cab simulators has been commissioned and has been deployed for initial familiarisation and training of the instructors required for the line-wide train operator training programme.
- 4.19 Good progress continues to be made on the end-state design and delivery planning for the extensive upgrades of the train maintenance depots at Northfields and Cockfosters. The contractors engaged to provide early contractor involvement are focussed on the efficient design and delivery methods to reduce the schedule and cost to complete for these major upgrades. Planning work include refinement of the staging and phasing of construction to ensure requirements for fleet maintenance, new train deliveries and train stabling can be met.

Operational Readiness

- 4.20 Readiness activities are underway to prepare operations and maintenance teams for new train introduction. The first driving cab simulator for the new train is now in London and is being used to develop the training programme for Piccadilly line Train Operators. A pilot training course has been completed which has resulted in the qualification of the Test Train Operators who will drive the train when it first arrives on the LU network for system testing.
- 4.21 Maintenance Readiness planning is continuing with input from SML to ensure that the necessary facilities, equipment and skills required for planned and casualty maintenance activities are available at each stage of the fleet migration from initial testing to full fleet service introduction. Train Maintenance staff have completed an initial pre-delivery familiarisation at Siemens' testing facility at Wildenrath to validate planned maintenance processes.
- 4.22 The Maintenance readiness team continues to provide inputs to the design and planning of the end-state facilities at Northfields and Cockfosters depots, new line-wide systems including OPO CCTV, signalling equipment changes and track to train communications systems where ongoing support is required post-upgrade.

Top Risks and Issues

- 4.23 Since October 2023 the Committee has been updated on the challenges currently facing the Programme, which include:
- (a) System Integration testing – the complex schedule of system integration testing with the first new trains on the railway remains challenging. The testing programme is dependent on completion of operations and infrastructure readiness activities and the functionality and performance of the new train and a wide range of interfacing systems;
 - (b) Access and Closures – access to the railway for completion of enabling works and system integration testing remains critical for achievement of the current PLU schedule. Changes to the planned level and availability of TfL closures in 2024/25 and 2025/26 will place current schedule assumptions at risk; and
 - (c) Stabling capacity – the new train delivery programme, alongside the continued operation of services with the legacy 73TS fleet, requires the

availability and full utilisation of upgraded train stabling facilities at depots and sidings. Enabling works are being carried out at stabling sidings to accommodate the longer 24TS trains and delays or disruption will impact on new train deployment, requiring temporary stabling arrangements with risks to schedule dates.

Delivery in 2024/25

4.24 The current forecast of PLU expenditure in 2024/25 is £409.0m. In the current year to date the Programme has spent £116.2m in the delivery of the planned activities described in section 4 above, with key milestones achieved and planned as summarised in Table 1 below.

PLU Milestones for delivery in 2024/25		Date
Train systems	• 1 st Train – Assembled and delivered to PCW for testing.	24/25 Q2
	• Platform stopping markers complete at 20 stations	24/25 Q2
	• 40 x 24 TS cars built and painted in Vienna.	24/25 Q3
Infrastructure	• Arnos Grove Blockade – Platform modifications complete	24/25 Q2
	• Train Arrestors installed – Arnos Grove & Wood Green	24/25 Q2
Signalling	• Signal sighting – Civils Installation complete: Hyde Park Corner to Bounds Green	24/25 Q2
	• Power for signalling immunisation – commissioned (South Harrow – North Ealing)	24/25 Q4
Depots	• Initial Maintenance facilities – Northfields 2 roads modified for 24TS.	24/25 Q2
	• Northfields Northeast Sidings bring into use for 73TS operation.	24/25 Q2
	• 4 x Train Driving Simulators commissioned.	24/25 Q4

Table 1 – PLU Milestones for delivery in 2024/25

Delivery in 2025/26

4.25 In 2025/26 the delivery of infrastructure enabling works will continue across the whole line and at the depots and stabling facilities to support the introduction of the new trains into passenger service from late-2025. The forecast for expenditure in 2025/26 is currently under review.

4.26 In early 2025, the first three new trains will undergo system integration testing on the railway, initially during closures followed by test train running during traffic hours from Spring 2025.

4.27 During 2025 we will be moving into the detailed design phase for the extensive

upgrades to the train maintenance depots at Northfields and Cockfosters with the award of contracts for both the facilities and the track and rail systems upgrades.

4.28 Key milestones and activities for delivery in 2025/26 are summarised in Table 2 below:

PLU Milestones for delivery in 2025/26		Date
Train systems	• All Platform Stopping Markers Installation complete.	25/26 Q1
	• One Person Operation (OPO) CCTV Installation and static testing complete.	25/26 Q1
	• 10 x 24 TS Trains delivered to London	25/26 Q2
Infrastructure	• Conductor Rail installation complete	25/26 Q2
	• HV Power upgrades – First batch complete	25/26 Q3
Depots	• Initial Maintenance facilities – Cockfosters 4 roads modified for 24TS	25/26 Q2
	• Cockfosters Wheel Lathe facility – bring into use.	25/26 Q4

Table 2 – PLU Milestones for delivery in 2025/26

5 Benefits and Value

5.1 As reported in October 2023, Stage 1 of the PLU will deliver essential asset renewals with the replacement of the life-expired Piccadilly line trains, enabling the following key benefits:

- (a) longer, more spacious and fully accessible walk-through trains;
- (b) an uplift of peak services from 24 trains per hour (tph) to 27tph, with the increased fleet size, to achieve a 23 per cent overall increase in peak service capacity from current levels;
- (c) improved service performance and very high levels of reliability from modern rolling stock and sub-systems;
- (d) a greatly enhanced customer experience through the introduction of on-train air-conditioning, improved customer information and security systems; and
- (e) improved energy efficiency, reducing annual energy consumption by more than 20 per cent compared with today's Piccadilly line service, enabling decarbonisation.

5.2 As authorised in May 2018, the business case for Stage 1 implementation, relative to the 'Do Minimum' base, had a Benefit-Cost Ratio (BCR) of 5.3:1.

5.3 Stage 2 of the PLU, if funded in future, will deliver further service enhancements through a line-wide signalling upgrade, including:

- (a) significant reductions in customer journey times;
- (b) improved service reliability through automatic train operation; and

- (c) fleet and signalling capability for a peak service of up to 36 tph in the central area – as now achieved on the Victoria line – to deliver a 64 per cent overall increase in peak capacity from today's service.
- 5.4 The Piccadilly line is one of London's most important lines for leisure travel which has seen the strongest growth in recent years, particularly at weekends. This reflects the key destinations served by the Piccadilly line including the West End, museum district and the busy interchange at King's Cross St Pancras.
- 5.5 Since October 2022, we have carried out further work to update public transport demand models to reflect latest projections of post-pandemic travel across the TfL network to 2041. A range has been retained to inform forecasting and two demand scenarios have been used to assess the possible changes to the nature of travel, in terms of origin/destination patterns, trip lengths and trip timing:
 - (a) the Planning Forecast follows a higher growth trajectory which includes a small increase in working from home compared to 2019 and stronger levels of population growth by 2041; and
 - (b) the Hybrid Forecast has population and employment projections following a more central trend. It also includes the latest emerging evidence on rates of working from home by industry sector and levels of leisure activity and online shopping.
- 5.6 The Planning Forecast assumes substantial medium-longer term growth with Piccadilly line boarders growing by up to 21 per cent on 2019 by 2041. The Hybrid forecast assumes that 2019 demand levels for the line are only marginally surpassed by 2041.
- 5.7 The PLU business case has been refreshed using the most recent 2023 demand data, and the current (Period 5, 2024/25) cost forecast.
- 5.8 Using the higher demand scenario, the business case for Stage 1 shows an overall BCR of 5.23:1 and a Net Present Value (NPV) of £3,145m. For the lower or 'Hybrid' demand scenario, the refreshed analysis shows a reduced BCR of 5.08:1 for Stage 1 and a NPV of £3,061m. These results confirm the continued value for money of the PLU Stage 1 business case.

6 Assurance

- 6.1 TfL Project Assurance and Independent Investment Programme Advisory Group have continued to provide assurance for the PLU programme. They have been fully engaged during 2024 and have received detailed briefings from the project team on the issues and challenges facing the Programme.
- 6.2 PA have undertaken a Project Assurance Review which was focussed on PLU's targeted re-baseline of the delivery schedule. This review aimed to determine the level of schedule confidence and the robustness of the process used for its determination.
- 6.3 A number of general recommendations for improvement have been raised, including a review of PLU project controls and a roadmap for improvements in resourcing and reporting arrangements. Recommendations have been accepted

by the team and will be actioned accordingly.

List of appendices to this report:

Appendix 1: New Siemens trains and PLU Delivery Progress

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

List of background papers:

IIPAG and TfL Project Assurance Report
Management response to IIPAG and TfL Project Assurance Reports

Finance Committee paper: Piccadilly Line Upgrade – Stage 1 Progress Update
December 2023

Programmes and Investment Committee papers:

- Piccadilly line Upgrade Stage 1 Progress Update, July 2021 and October 2023
- Deep Tube Upgrade Programme – Piccadilly line Upgrade Stage 1: Rolling stock replacement (Parts 1 and 2) May 2018

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

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

Appendix 1: New Siemens trains and PLU delivery progress

Figure 1: Siemens 24 Tube Stock interior:

Saloon interior of a pre-production train at Siemens' PCW Test facility, Wildenrath, Germany in Summer 2024



Figure 2: Siemens 24 Tube Stock assembly:

First production 24 Tube Stock vehicles delivered to Siemens' UK facility in Goole for assembly and fit-out:

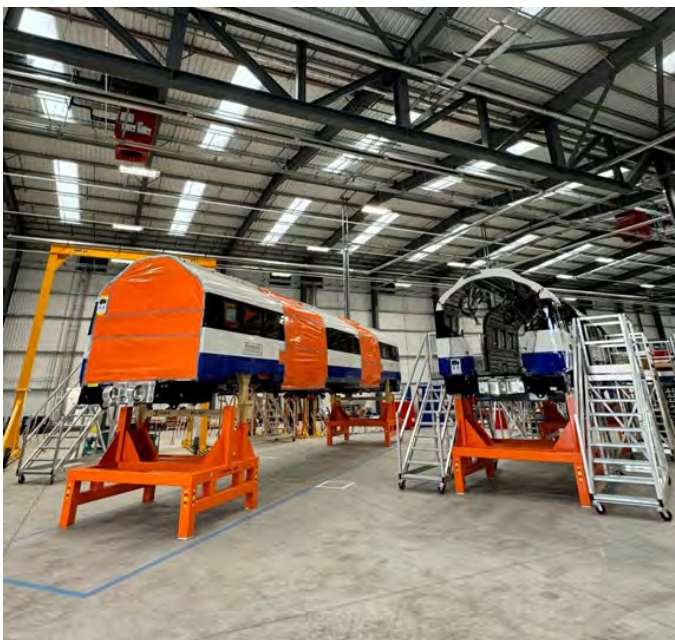


Figure 3: PLU Enabling Works progress:



(i) New tunnel section traction power Conductor rail installation underway

(ii) New DC Power supply Switchboards installed at Cockfosters and Northfields sub-stations



(ii) Platform reconstruction works underway at Arnos Grove station

(iv) Three new train stabling and reversing sidings constructed at Northfields



Date: 3 October 2024

Item 11: London Underground Renewals

This paper will be considered in public

1 Summary

£m	Existing Financial Authority	Existing Programme and Project Authority	Additional Authority Requested	Total Authority	Prior Years Spend	Forecast 24/25 to 26/27
LU Renewals	£3,567	£3,721	£171	£3,892	£2,187	£1,594

Table 1: Summary of Programme and Project Authority (see Table 12 below for further detail)

- 1.1 This paper updates the Committee on the progress of the London Underground (LU) Renewals Programme (the Programme). The Programme also includes Elizabeth line (EL) renewals. The Programme maintains the safety, operability and reliability of LU and EL assets through a prioritised programme of renewals.
- 1.2 Additional Programme and Project Authority of £171m is requested, bringing the total Programme and Project Authority to £3,892m. This will allow delivery of the Programme through to the end of financial year 2026/27 and allow TfL to enter into longer term contractual commitments required for programme delivery for 2027/28.
- 1.3 The focus of this paper is to present the achievements of the Programme since the previous submissions; provide assurance to the Committee on the progress of the Programme and the future plans; and set out the existing Programme and Project Authority alignment to the current forecasts through to the end of the 2026/27 financial year.

2 Recommendation

- 2.1 The Committee is asked to note the paper and:
 - (a) approve additional Programme and Project Authority of £171m for the Programme, bringing the total Programme and Project Authority to £3,892m; and
 - (b) note that matters for which authorities are sought above include commitments that extend beyond the period of the 2024/25 Budget and

provision will, therefore, need to be made for those commitments in future budgets.

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. Maintaining a State of Good Repair (SoGR) of LU and EL assets through renewals is key to delivering all these plans. It is particularly important to ensure that renewal of critical assets takes place to maintain a safe, operable and reliable public transport network.
- 3.2 Budget constraints have reduced investment in all our renewals and we are beginning to see service impacts resulting from the degrading asset base. Examples of declining asset reliability and availability are described later in this section and also in Appendices 1 and 2. TfL continues to operate and maintain a safe service.
- 3.3 The Programme includes major renewals to address high priority asset failure risks; for example, the Central Line Signalling Incremental Programme (CSIP); the Central Line Improvement Project (CLIP) (fleet renewal); and the Aldgate points and crossings renewal. The required funding to address these, in addition to the rolling renewal programmes for track, fleet, signals and other systems is significant and not all planned activity will be affordable. Decisions will therefore be required as part of the 2024/25 business planning to prioritise which projects proceed and at what pace. Should this result in any changes to the Programme, an update will be provided to the Committee.
- 3.4 The additional Programme and Project Authority requested is £171m. £61m of this request is to cover forecast spend for all projects and programmes between 2024/25 to 2026/27 as detailed within this submission. The remaining £110m of the Programme and Project Authority request is for expenditure in 2027/28 relating to longer term contractual commitments that TfL needs to enter into over the course of the next year. This is principally for the CLIP, Bakerloo line Rail Vehicle Accessibility Regulation (RVAR) modification, Aldgate points and crossings replacement, civil infrastructure projects and the Safe Track Access programme. The total value of the Programme from April 2024 to April 2027 is £1,594m. The phasing of this is set out in Table 12.

LU and EL Renewals

- 3.5 LU renewals are grouped by asset type and include track; signals and control systems; fleet (both passenger and engineering vehicles); buildings and supporting civils infrastructure (including station buildings, depots, and other LU buildings, as well as embankments, bridges, tunnels and lighting); lifts and escalators; and systems (including power, electrical, mechanical, fire and communication systems). EL assets are currently managed as a single programme rather than being grouped by type.

3.6 Functions carried out by the Programme include both heavy maintenance and overhaul, full replacement of life-expired assets, addressing emerging performance issues and developing power network resilience. The Programme also contains a limited amount of improvement work, like CSIP and Heavy Haulage, or when a project is upgrading to more modern technology.

Environmental Objectives

3.7 The Programme contributes to our environmental and carbon reduction objectives by maintaining existing LU and EL assets in a SoGR, supporting mode shift to public transport, which is a low-carbon form of travel. In addition, the Programme includes many projects which will improve energy efficiency, helping to reduce the energy demand of LU as a whole and contributing to the Mayor’s ambition for London to become carbon neutral by 2030. The Programme also delivers renewal activity in a way which reduces emissions. For example, deliveries of track, ballast, and sleepers all now take place by rail rather than road. We now complete carbon modelling for all building renewals. In addition, TfL has introduced a whole life carbon management process which ensures carbon management is actively considered throughout the project lifecycle.

3.8 Examples of energy efficiency and environmental projects within the Renewals Programme are shown in the Table 2 below.

Table 2: Energy efficiency and environmental projects

<p>LEDs</p>	<p>All planned lighting renewals are now LED with the replacement project aiming to save £23.5m over 10 years. Examples include:</p> <ul style="list-style-type: none"> • The rolling replacement of station lighting replaces fluorescent lights at the equivalent of 20 stations per year with LEDs, reducing emissions by 2254t CO₂e per year (50 per cent reduction); • 475 lights and fittings were completed in April 2024 at Canary Wharf EL station replacing a non-compliant design and estimated to save 3t CO₂e per year. Further roll out is planned at Great Eastern (GE) stations; • Replacement with LEDs has commenced in depots, at Stonebridge Park, Hainault and Ruislip. These will all be complete by end of 2024/25; • LED fitment on 36 Bakerloo line trains reduced carbon emissions by 0.29t CO₂e in end of 2023/24 (55 per cent reduction).
<p>Energy Consumption</p>	<p>CLIP includes the introduction of new motors on the trains that will reduce energy consumption by seven per cent, leading to a cumulative saving of 6,000t CO₂e across the Programme</p> <p>By utilising lighter die cast aluminium steps instead of traditional steel steps, our renewed escalators will offer a 34 per cent reduction in energy consumption. In addition, trials are being carried out to look at whether escalator speed reductions could safely be implemented at certain times to further save energy.</p>

Flood Risk Assessments	A hydraulic and pluvial flood risk assessment has been undertaken at EL GE stations and will inform future mitigation works to safeguard stations in periods of intense rainfall.
-------------------------------	---

Asset Duties and Responsibilities

- 3.9 The Office of Rail and Road (ORR) regulates health and safety on all mainline railways in the UK, including LU and EL. We are required to meet ORR safety requirements to obtain the certification and authorisation required to operate trains, stations and infrastructure. The need to meet the Health and Safety standards set by the ORR, as well as other relevant Health and Safety legislation, drives many renewals projects.

Maintaining Assets in a State of Good Repair

- 3.10 TfL assets are maintained to a SoGR to provide a safe and reliable network that meets customer expectations while minimising whole life costs. An Asset Condition Report is produced for each asset area on an annual basis, and where possible, records SoGR based on industry standard condition measures. This uses a five-point physical condition summary (Very Good, Good, Fair, Poor, Very Poor). Where the SoGR is below the preferred range, it reflects the need for renewals investment to deliver a safe and reliable network and reduce the risk of injuries, restrictions and closures arising from critical failure.
- 3.11 Details of how SoGR is measured and calculated are provided in Appendix 1, with information on the current SoGR of assets within the LU Renewals portfolio. For some asset areas, SoGR data remains poor for historic reasons. We are investing in a data collection programme to ensure we have reliable condition data for every asset to support our investment decisions. In areas with poor data, other metrics have been used to prioritise works, but a common metric is the target to inform decision-making.

Impact of Budget Constraints on Asset Condition

- 3.12 From 2018/19 to 2023/24 the level of funding allocated has been insufficient to maintain the SoGR of the network. This will lead to an increased impact on customer service and continue to build a backlog of works to be completed in future. Where continued safe operation of assets is not possible, closures or service restrictions will take place.
- 3.13 Asset Strategy has modelled the degradation of asset condition and Table 3 below shows the investment required to achieve 'steady state' within these asset groups across the six years. Steady state means achieving a Level of Service rated as 'Average' against our quantified Asset Management Objectives.

Table 3: Actual spend compared to modelled average spend required to maintain Steady State

Sub-programme - Asset Group	Annual investment required to achieve steady state (2024 estimate)*	Actual / Forecast levels of investment by year (£m)						
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25 Forecast
Track	210	114	122	76	132	86	122	121
Fleet – Passenger	220	52	66	51	70	121	145	182
Fleet – Engineering Vehicles	30	4	23	4	7	4	3	9
Signals and control	130	14	15	7	12	26	34	43
Systems – Lifts and Escalators, Power and Electrical, Mechanical, Fire and Communications	210	38	50	28	55	63	81	73
Built Environment and Civils	60	6	12	7	11	19	20	29
Elizabeth line	56	0	0	0	0	1	9	9
Programme Total	916	229	288	173	287	319	414	465

*Estimates are based upon average spend over the next six financial years in the Asset Strategy steady state model. Note: Total investment levels differ to other tables in this paper as certain programme elements are not included: e.g. safe track access, which provides tools to improve the safety of colleagues undertaking track works.

3.14 Table 4 below shows the estimated extent of the investment backlog by asset area. The biggest backlogs are in Track and Passenger Fleet. The increasing renewals backlog will place additional pressure on future years' budgets as the assets continue to deteriorate further and require more extensive, and therefore more expensive interventions.

Table 4: Estimated backlogs developed using historical analysis

Asset Type	Renewal backlog since 2015/16 (£m)	% of total LU backlog
Track	1700	34
Fleet - Passenger	771	15
Systems - Mechanical, Fire and Communications	583	12
Built Environment	500	10
Systems - Power and Electrical	200	4
Fleet - Engineering Vehicles	187	4
Signalling and Control	94	2
Systems - Lifts and Escalators	70	1
Civils	900	18

The lack of sufficient budget for renewals is already impacting on the ability to run services for our customers at the desired levels. The overall service operated percentage across LU in Periods 1-4 in 2024/25 (1 April to 20 July 2024) was 90.3 per cent, against a target of 91.6 per cent. In addition, the declining condition of assets has begun to manifest itself in reductions in performance in some areas. For example:

- (a) on the Jubilee line, fleet availability regularly drops to around 80 per cent, when 90 per cent of fleet is required to operate the full timetable; and
- (b) the operational impact of track speed restrictions in Lost Customer Hours (LCH) has risen by 69 per cent in the last five years.

3.15 These impacts will become more apparent if we need to implement further interim measures to maintain safety, such as speed restrictions or trains, lifts and escalators being taken out of service. The number of incidents resulting in LCH linked to asset condition is shown in Table A2 and service impacts felt across LU due to asset renewal deferrals are shown in Table A3 in Appendix 2.

Prioritisation and Efficiency

3.16 A prioritisation framework is used across all our capital renewals investment. This determines the Programme budget by comparing the asset needs for LU and EL renewals against those in other TfL programmes and networks. The framework uses seven Asset Management Objectives (AMOs) aligned to business objectives. The AMOs are Safety, Colleague, Customer Comfort, Reliability, Finance, Capacity and Growth. Current levels of service against the AMOs are established and future forecasts are modelled against a series of different budget scenarios. Details of the budget scenarios modelled are provided in Appendix 3.

3.17 The projected budget constraints in 2025/26 and 2026/27 mean that we may not be able to fund all our high-priority projects. We are in the process of assessing which projects to defer to future years and what impact this will have on the network. The most significant business and customer impacts of asset condition decline are listed in Appendix 4, along with the actions we are taking to minimise these risks. These are considered in terms of safety, customer experience, costs, revenue loss arising from journey time increases and reputational damage.

3.18 To ensure allocated funding is spent within the year, projects are progressed at the start of the financial year with a total forecast expenditure which is in excess of the budget. They are then considered on a periodic basis to assess what changes may be required (for example, to slow down works) to ensure the total renewals spend remains within the budget. This is to ensure we are able to accelerate other works if a particular scheme is delayed thereby maximising the use of the available budget.

Value for Money

- 3.19 There are a wide range of investments in this Programme, which collectively make contributions to all five of TfL's Strategic Priorities: Customer, Colleague, Safety and Security, Green, and Finance. The largest contribution is to outcomes supporting the 'Customer' priority, as these investments help to keep the network safe, and therefore operable, minimising closures, and the consequent delays and disruption.
- 3.20 The Programme's approach to project prioritisation is described in 3.16 to 3.18 above and Appendix 1. Asset modelling and historical performance trends have been used to assess the SoGR that we expect this planned investment to achieve. We are confident our investments represent value for money, and that their benefits, or 'disbenefits avoided', significantly outweigh their costs.
- 3.21 Projects are assessed to ensure value for money is fully considered when selecting delivery and procurement options. One of the more significant projects that has been assessed in this way, with a full cost benefit analysis and value analysis is the CLIP project. The Central line fleet is ageing earlier than planned and has issues with car-body corrosions, unreliable traction motors and obsolete electronic systems. Being the longest line with no planned replacement in the future, LU invested £580m in a major intervention to upgrade the Central line trains. Almost every part of the train overhauled or repaired and upgraded with new traction systems, train computers, LED lighting, passenger information systems, CCTV, seats and RVAR-compliant modifications. The business case shows this investment is financially positive, generating sizeable benefits in improved service performance, accessibility, safety, and energy efficiencies.
- 3.22 Environmental considerations are now a more significant part of the TfL value for money process. TfL now considers a project's environmental benefits alongside the economic and social benefits, and financial impacts and seeks to understand any potential trade offs. For example:
- (a) slower speed escalators can save energy, but this needs to be optimised against longer customer journey times; and
 - (b) a trial for more sustainable materials for sleepers balances the benefit of a reduced environmental impact, against any possible reduction in performance of those sleepers, e.g. noise, and longevity
- 3.23 As well as using project prioritisation, additional value for money is achieved with improved delivery efficiency and innovation. Projects which will enable us to work more efficiently in future are shown in the table below.

Table 5: Efficiency projects

Innovative Escalator Modernisation	A new approach to escalator replacement; all electrical and mechanical components are replaced while retaining the existing truss and supporting structure. It is anticipated that this will reduce the cost of escalator renewals by 30 per cent. Delivery of the first renewal using this method is planned for April 2027.
Modular Points and Crossings	Enables transportation of prefabricated points and crossings to site, reducing track possession and increasing the rate of delivery.
Yellow Plant Signalling Modification	Enables EL engineering trains to run at normal line speed during normal traffic hours, resulting in a more efficient use of the available engineering hours and quicker completion of planned track maintenance activities. Additionally, the use of innovative yellow plant for rerailling activities has been successfully trialled and will be deployed on rail replacement works in 2024/25.
Asset Data collection	Within the Built Environment asset area, we are utilising drones to undertake roof surveys, eliminating the need for temporary works access and therefore significantly reducing overall delivery cost. Collecting this asset data helps inform a data-driven prioritisation by identifying the assets that are most in-need of remediation.

4 Programme Delivery in 2023/24

- 4.1 Delivery to July 2024 has been strong across the Programme against the original budget approved by the Board in March 2024. The total investment in 2023/24 was £421m, an increase of £41m against the original budget of £370m. The increased level of investment was approved by Investment Group from underspend in other portfolios and this allowed the Programme to increase outputs across a number of critical renewals. For example, Track was able to deliver 7,796 metres of bullhead rail to flat-bottom conversion, 1,169 metres more than the target of 6,600 metres (18 per cent increase).

Table 6 – Base budget compared to actual spend 2023/24

Sub-programme - Asset Group / £m	2023/24 budget	2023/24 actual	Difference
Track	95	122	27
Fleet – Passenger	123	145	22
Fleet – Engineering Vehicles	13	3	-10
Signals and control	34	34	0
Rail Systems Enhancements	6	4	- 2
Systems (lifts and escalators, power and electrical, mechanical, fire and communications)	65	81	16
Built Environment and Civils	20	20	0
Safe Track Access	2	1	- 1
Elizabeth line	9	9	0
East Ham Wall and Four Lines Modernisation Vent	2	2	0
Programme Total	370	421	41

Note: This table contains rounded numbers.

4.2 Some key outputs for 2023/24 are shown in the Table 7 below. Full details can be found in Appendix 5.

Table 7 – Key Outputs for 2023/24

Key Outputs for 2023/24	
Fleet	<ul style="list-style-type: none"> • Central Line: First CLIP train entered into service in November 2023. CCTV security centre at Hainault Depot completed. • Bakerloo line RVAR completed all LED fitment contributing to TfL's effort to reduce carbon emissions. • RVAR works complete on 12 trains.
Track	<ul style="list-style-type: none"> • 7,796 metres of bullhead rail converted to flat bottom rail. • 1,762 metres of deep Tube renewal against a target of 1,750 metres. • Renewal of 2,663 metres of Ballasted Track, against a target of 1,750 metres (52 per cent increase).
Lifts and Escalators	<ul style="list-style-type: none"> • Delivery of seven escalator and two passenger conveyor refurbishments, which improve reliability and availability for our customers to access the network. • Replacement of two escalators at Marylebone station, and an additional third escalator added to increase capacity.
Elizabeth line	<ul style="list-style-type: none"> • Rerailing of degraded rail sections in the Connaught Tunnel, avoiding potential speed restrictions of 20mph. • Replacement of the staircases leading to the pedestrian walkway leading to the two alternate exits at Ilford station.
Railway Systems Enhancement	<ul style="list-style-type: none"> • Completion of works on the Jubilee line fleet to allow increased number of trains in and out of the Neasden depot. • Resolution of emerging signalling issue on the Jubilee line. • Commissioned Northern line extension (NLE) signalling software to address outstanding issues.
Power and Electrical	<ul style="list-style-type: none"> • Completion of the first tranche of Online Battery Inverter (OLBI) renewals, delivering 20 OLBI units on the network.
Building and Fabric	<ul style="list-style-type: none"> • Weston Rise Headhouse demolition completed. • Feasibility complete and option selected for Highgate Depot roof replacement and hazardous material removal works.
Civils	<ul style="list-style-type: none"> • Stonebridge Park depot lighting replacement complete. • CTS4B piling and re-grade completed.
Signals and Controls	<ul style="list-style-type: none"> • Bakerloo Line Upgrade Project, the contract award for Control Room Fit out works.

Key Outputs for 2023/24	
Staff Welfare	<ul style="list-style-type: none"> Eight LU sites brought into use, renewing over 30 welfare rooms.
Safe Track Access	<ul style="list-style-type: none"> Permanent Conductor Rail Indicator Device (P-CRID) Concept Design Statement completed and approved

4.3 Appendix 5 contains a breakdown of delivery by sub-programme since the last submission. Individual asset area underspend was avoided by allocating budget to the next highest priority project.

Figure 1 – Example of our 2023/24 deliverables

Integrated Track Team deliver Points and Crossing renewal at Northfields Feb 2024



5 Programme delivery for 2024/25, 2025/26 and 2026/27

Scheme Prioritisation and Option Assessment

5.1 Several budget scenarios were considered during business planning, details of which are provided in Appendix 3. The renewals funding envelope for 2024/25 to 2027/28 places us in the ‘Business Plan 24’ scenario.

5.2 Projects were scored according to their impact on our seven key AMOs. Under the ‘guiding mind’ principle, key stakeholders from Asset Strategy, Maintenance and Engineering teams came together to assess the scored options against risk and deliverability. This work resulted in a ranked list of schemes for delivery. At present, more high priority schemes have been identified for delivery than can be

funded from the allocated budget. This will be addressed during business planning as we identify where schemes need to be deferred.

- 5.3 Periodic reviews will be used to assess the level of delivery achieved, risks, and whether additional commitments can be made through change control should additional funding become available or if there is slippage within the Programme or wider TfL. This approach gives maximum flexibility to target funds to deliverable priorities.

Delivery in 2024/25

- 5.4 To date in 2024/25 the Programme is on schedule to deliver the remainder of the planned outputs which were set out in the paper to the Committee in October 2023. Appendix 5 summarises progress so far and outstanding work for these projects by sub-programme. Some of the key projects we are delivering in 2024/25 are shown in Table 8 below.

Table 8 – Key Projects to be completed in 2024/25

Key Projects	
Track	<ul style="list-style-type: none"> Blockade works at Arnos Grove to renew points and crossing, 262 metres of Ballasted Track, 300 metres of drainage, platform train interface nosing stones. Ballasted Track Renewals of 450 metres on the Piccadilly line from Rayners Lane Junction to South Harrow.
Fleet	<ul style="list-style-type: none"> Five CLIP train and overhauled trains will return to service. Contract award for seats overhaul and new doors. Bakerloo Line RVAR – 50 per cent wheelchair bays and grab poles by March 2025.
Lifts and Escalators	<ul style="list-style-type: none"> Five lifts replaced. Twenty five escalator refurbishments and replacements.
Signals	<ul style="list-style-type: none"> Removal of all Polychlorinated Biphenyls (PCBs) containing capacitors.
Elizabeth line	<ul style="list-style-type: none"> Renewal of obsolete communications equipment to maintain critical interfaces with route control. Staircases and roof renewal at Seven Kings station.
Power and Electrical	<ul style="list-style-type: none"> Central line Holborn Direct Current Switchboard replacement. Supervisory Control and Data Acquisition system Life Extension (Power control system).
Railway Systems Enhancements	<ul style="list-style-type: none"> Northern line signalling improvement Timetable 58 (WTT58) and NLE outstanding works are schedule to complete in Quarter 4 2024/25. Power Package 1 – replacement of life expired power asset scheduled to complete in Quarter 3 2024/25.

- 5.5 There is a high confidence that the 2024/25 programme will be delivered. Careful management of resources, contracts and programme risks will be required and, should further funding become available, a work-bank of opportunities for acceleration of priority schemes is in place. We are also considering scenarios where we could stop or slow down projects to reduce expenditure, if required.
- 5.6 There has been ongoing disruption on the Central line, caused by higher than normal rates of motor failure on the 30 year old trains. This has meant that fewer trains have been available for service each day. We have introduced a new timetable which means customers are experiencing a more consistent and reliable service, although frequencies are lower than last year. We are completely focused on returning more trains to service and further improving service levels as soon as possible. To help manage this, we have strengthened our engineering and fleet teams who are working tirelessly with suppliers to return trains back to service as quickly as possible. In the longer term, CLIP will see £500m improvements to the current rolling stock. This will improve reliability and provide better safety, accessibility and information for Central line customers.
- 5.7 A new system for the internal saloon door that ensures driver security has now been developed and proved to be successful. This has now been fitted on the Waterloo & City line fleet; and LU is committed to roll out the enhanced drivers' Cab Security system on the rest of the LU fleet.
- 5.8 Kentish Town station previously had two escalators which were 26 years old and obsolete. They were the poorest performing escalators on LU and often caused last-minute station closures and disruption for customers. These escalators are now being replaced with new machines that will last for 40 years. As Kentish Town station had to be closed to replace the escalators, the opportunity was taken to make other improvement works at the same time, including the removal of the redundant ticket office and realigning the ticket barriers. While making these improvements, it was found that the station required additional complex and time consuming repairs. This included replacing the concrete floor and ceiling slab along with a supporting steel beam. Work is now progressing well and Kentish Town station is due to reopen at the end of 2024.

Scope in 2025/26 and 2026/27

- 5.9 Many activities will continue into the following financial years as they are significant projects with lifecycles beyond one year. We continue to review delivery challenges and lessons learnt which ensures that we improve our efficiency. Some of the projects we will progress in 2025/26 and 2026/27 are shown in Table 9 below.

Table 9 – Planned Projects in 2025/26 and 2026/27

	Planned Projects
Fleet	<ul style="list-style-type: none"> • CLIP full production rate by March 2027. This includes cab doors security systems installed on the fleet.
Elizabeth line	<ul style="list-style-type: none"> • Continue the GE station renewals on the EL. • Stepney Green junction (EL) points renewal Quarter 3 2024/25.
Railway Systems Enhancement	<ul style="list-style-type: none"> • Completion of programme by end of 2026/27.
Power and Electrical	<ul style="list-style-type: none"> • Conversion of lighting at Kings Cross to LEDs. • Tranche 2 of the OLBI conversion (40 units).
Track	<ul style="list-style-type: none"> • Aldgate points and crossings renewal project, main work targeted to complete by summer 2027.
Systems (Mechanical and Communications)	<ul style="list-style-type: none"> • Jubilee line extension smoke dampers complete.
Built Environment. (Building and Fabric)	<ul style="list-style-type: none"> • Platform remedial works at 34 stations. • Panel replacement works at Fulham Broadway. • Water ingress works at Liverpool Street and Charing Cross. • Canopy remedial site works for 25 stations.
Built Environment, Civils	<ul style="list-style-type: none"> • Embankment stabilisation at East Acton. • London Road tunnel water ingress remediation. • Barons Court column and canopy refurbishment.
Safe Track Access	<ul style="list-style-type: none"> • New P-CRID product designed and accepted (2025/26). • Installation of P-CRID underway (due to complete in 2027/28).

Forecast spend by sub-programme

- 5.10 The Programme and Project Authority requested by this submission, covers all work planned to take place until 2026/27 and to ensure our longer-term commitments can continue. This timeframe allows for certainty in forward planning and efficiency in procurement activities expected to take place in 2025/26.
- 5.11 This request includes additional authority to cover the full estimated final cost (EFC) of the Safe Track Access and Aldgate points and crossing renewal schemes (both the track and signalling elements following the transfer of the signalling element of the Aldgate works from the Four Line Modernisation Programme to the LU Renewals Programme at the meeting of the Committee in June 2024). Both schemes are expected to be committed in the next year and include spend beyond 2026/27. Other projects for which Programme and Project Authority is requested for 2027/28, to allow longer term contractual commitments are CLIP, Bakerloo line (RVAR) modifications and civil infrastructure projects.

5.12 The Rail Systems Enhancements, which aims to maximise utilisation and performance of the existing trains, infrastructure and signalling on the Northern and Jubilee lines, EFC (at Period 5 2024/25) is £2.4m more than the previously granted authorities, and the required additional authority is contained within the Programme and Project Authority requested by this submission.

5.13 The forecast in Table 10 below shows financial years to 2028/29 inclusive. This recognises that the existing budget constraints are forecast to continue for the foreseeable future. Refinement of the forecast for future financial years will take place through the business planning process and be presented in future annual submissions to the Committee. This will be prioritised in accordance with our Asset Strategies and network priorities.

Table 10: Forecast spend (£m) by sub-programme

Sub-programme - Asset Group	2024/25*	2025/26	2026/27	2027/28	2028/29
Track	121.3	110.9	124.0	149.5	139.8
Fleet – Passenger	181.6	177.9	184.0	154.0	119.4
Fleet – Engineering Vehicles	8.6	19.3	25.9	41.0	63.0
Signals and control**	42.7	48.7	41.1	53.4	44.8
Railway System Enhancements	5.6	8.7	8.9	0.0	0.0
Systems (lifts and escalators, power and electrical, mechanical, fire and communications)	72.6	89.0	97.6	85.9	166.5
Built Environment and Civils	29.1	60.2	79.4	90.9	62.4
Safe Track Access	2.2	6.1	8.7	1.0	0.0
Elizabeth line	9.1	9.0	17.4	29.3	30.3
East Ham Wall and Four Lines Modernisation Vent	3.6	1.6	0.0	0.0	0.0
Programme Total	476	531	587	605	626

*Forecast at Period 5 2024/25. Forecast spend includes green and amber scope.

**In the table above the Signals and Control line also includes the forecast spend for the signalling element of the works for Aldgate Junction renewal which is within Capital. The spend for the track element of the works is included within the “Track” asset line in the above table.

Asset condition resulting from our Investment

5.14 Investing in renewals is essential to the continued operation of LU and EL services. Tables 3 and 4 (in Section 3 above) show that current and forecast levels of investment are below what is required to maintain a steady state in terms of SoGR, and asset modelling shows that current investment proposals are resulting in a backlog of renewals. In a ‘Long Term Plan’ scenario where investment is delayed, more must be spent on maintenance and when interventions occur, they may be more extensive and costly. Whole life costs and best value for money are harder to achieve in these circumstances. This is being mitigated by:

- (a) the use of asset condition modelling to understand where interventions are most needed and to find the best balance between maintenance and renewal;
- (b) a detailed prioritisation process which ensures investment is targeted towards areas where risk is highest;
- (c) our £18m Asset Data Improvement sub-programme which will greatly improve the quality of asset data in key areas;
- (d) the prioritisation of projects which will improve efficiency (for example, through mechanisation) over the long term;
- (e) stronger and more regular analysis of condition and performance data to inform any operations mitigations and ensure we draw clear links between renewal investment and performance / customer service; and
- (f) resolution of rolling stock and signalling legacy / emerging safety issues and power network resilience will reduce the risk of safety and service disruption on the Jubilee and Northern lines.

6 Programme Risks and Milestones

- 6.1 Table 11 below shows top risks associated with delivery of the Programme to address asset resilience and a decline in the SoGR.

Table 11: Top risks for the Programme

Risk No	Risk Description	Mitigation Actions
1	Constrained funding and increasing materials and labour costs due to supply chain resilience and inflation impact delivery against objectives. Declining SoGR increases risk of asset failure. Increased risk of asset failures result in the programme needing to be re-prioritised in year.	Prioritise projects on whole life cost and risk to ensure best value. Strengthen regular reviews. Develop greater asset health awareness through data collection to prioritise critical assets in line with our Asset Strategies and life extend where possible. Ensure that maintenance and operations can react to asset condition changes. Regular engagement with the supply chain regarding any supply challenges. Projects are reviewing options with suppliers to mitigate against increasing materials costs.
2	Lack of attractiveness to supply chain due to smaller contracts let on a case-by-case basis.	Review commercial strategy within the duration of available funding. Reviewing available frameworks to assess if they continue to be fit for purpose.
3	Resource levels in planning, delivery and supporting teams (e.g. Commercial) and long lead times to replace resources impact delivery.	Consolidate work packages to reduce supply chain uncertainty and make more efficient use of commercial resource. Regular deliverability reviews, and escalation to senior management in cases where resource shortages may directly impact delivery timescales.
4	Access to the network for delivery of works.	Early engagement and continuing coordination and communication through delivery with relevant stakeholders.
5	Maturity of Asset Strategies is variable. Data may be unreliable or incomplete.	Ongoing development of our Asset Strategies to identify data gaps and address these. Use tacit knowledge, while asset data matures.

6.2 Risk allowances are applied at the project level. The Programme does not include a programme-wide risk allowance so increases in costs beyond known and planned project risk need to be balanced by reductions or deferrals into future years. This reflects the fact the Programme is comprised of hundreds of schemes that, experience has shown, enable risk to be effectively managed across the Programme using the work-bank approach.

7 Commercial Strategy

7.1 The Programme is predominantly delivered by our internal Direct Labour Organisation, contractors via existing frameworks and individual tenders for rolling renewal interventions.

8 Financial Implications

8.1 The 2024/25 TfL Budget and 2024 Business Plan provides the Financial Authority needed to deliver the scope of the works set out in this request. The

Programme's Financial Authority and Programme and Project Authority is shown in Table 12.

Table 12: Summary of the costs and funding

LU Renewals								
Rounded to £m	Prior Years	24/25	25/26	26/27	27/28	28/29	Total	
Financial Authority*	2,187	445	427	508	-	-	3,567	
Programme Forecast	2,187	476	531	587	605	626	5,013	
Programme and Project Authority	Existing authority	2,187	476	531	526	-	-	3,721
	Authority requested	-	-	-	61	110	-	171
Total Authority	2,187	476	531	587	110	0	3,892	

* Financial Authority is Budget for 2024/25 only, 2024 business plan thereafter, (Board approved Business Plan to 2026/27 only). Financial authority includes "green scope" only. (Programme forecast includes "green" and "amber" scope). (Numbers in table above include rounding)

8.2 The Programme and Project Authority request exceeds Financial Authority. The 2024 Business Plan grants Financial Authority for spend up to the available budget for the period through to 2026/27. This Programme and Project Authority request includes commitments beyond the period of the Business Plan, as well as allowances to develop additional critical renewals projects that could be accelerated if additional budget became available (through the 2025 Business Planning process). Spend will be controlled in line with the available budget through the authority drawdown process.

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 Most of the Programme is like-for-like renewals that maintain existing provision. However, we seek opportunities to improve access where possible in all projects. For example, fleet life extension projects include bringing the vehicles up to an agreed level of compliance with the RVAR and lift refurbishments and replacements contribute to maintaining availability of step-free access to our stations. There are temporary impacts for customers during the delivery of works. Equality Impact Assessments will be completed on projects as required. Deteriorating asset condition, particularly in lifts and escalators, has a higher

adverse impact on older and disabled customers, and a lower level of investment in Fleet means it will take longer to meet our RVAR obligations.

10 Assurance

- 10.1 In support of this Submission, TfL Project Assurance are currently conducting an independent Integrated Assurance Review on the LU Renewals Programme. Details of this review and any recommendations and Management Response will be separately shared with the Committee. An agreed Integrated Assurance Plan (IAP) for the Programme, covering the next 12 months, is in place and sets out those individual projects / programmes within the LU Renewal Programme that are expected to be reviewed in detail over the next 12 months. The IAP is reviewed and updated quarterly.

List of appendices to this paper:

Appendix 1: State of Good Repair

Appendix 2: Impacts of Reduced Investment in Assets

Appendix 3: Budget Scenarios

Appendix 4: Business and Customer Impact of Reduced Investment in Assets and Mitigation Actions Taken

Appendix 5: Delivery since last Committee submission and plan to next submission

List of Background papers:

IIPAG and TfL Project Assurance Reports

Management response to IIPAG and TfL Project Assurance Reports

Contact Officer: David Rowe, Director of Investment Planning

Email: davidrowe@tfl.gov.uk

Appendix 1: State of Good Repair (SoGR)

SoGR, where available, is based on industry standard condition measures. SoGR helps inform prioritisation of interventions, although not in isolation (other factors, such as asset criticality, risk, safety, and service are considered alongside SoGR). We have mapped these industry measures to 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.

Not in a SoGR – the sum of the percentages in the Poor and Very Poor categories. Typically, these assets have a higher probability of failure and should be considered for a renewal within the next one to three year period (subject to assessment through prioritisation processes).

SoGR in LU is calculated using a range of methodologies, primarily using data from Asset Condition Reporting. However, there are some gaps across LU's asset base limiting our ability to calculate a total SoGR for LU. In these cases, other condition and asset health metrics are used to support prioritisation.

Asset Strategy is in the process of developing a new metric for asset condition which will give a broader view of asset health. For example, by also considering regulatory compliance, maintainability and reliability. This will be rolled out across the programme in 2024 and will give better consistency of reporting across different asset groups.

Table A1: SoGR of LU Renewals Assets

Sub-programme - Asset Group	% of SoGR (latest available data)	Notes and comments
Track	48	35.7 per cent track is classed as life expired, with a further 16 per cent classed as Poor. However, significant progress has been made in improving the SoGR of deep Tube track in particular. Project close out and more accurate asset condition data, track life extension projects (which offer a short-term improvement), and work completed has seen an increase in the amount of deep tube track classed as 'Good or Very Good' to 31.1 per cent in 2023, from 17.7 per cent in 2021. The percentage of life expired deep Tube running line has also reduced from 54.5 per cent in 2021 to 36.1 per cent in 2023.
Fleet Passenger	40	The overall SoGR of the passenger fleet has declined from 46 per cent in 2020 to 40 per cent in 2024. This reflects the reduced investment in overhauls. However, the Piccadilly

Sub-programme - Asset Group	% of SoGR (latest available data)	Notes and comments
		line Upgrade (PLU) will bring in new rolling stock from 2026, so condition of this fleet is being wound down.
Logistics and Manufacturing - Engineering Vehicles	23	The condition of the Engineering Vehicles fleet is particularly poor due to historic under-investment. Due to the complexity of the vehicles and the need for many of them to be operable on all lines, requiring them to be compatible with multiple signal types, many vehicles are 40+ years old. It has often been judged more cost-effective to repair existing vehicles than to replace them.
Signals and control	95	Signals SoGR is 95 per cent; however, it should be noted that this metric does not capture the problem of obsolescence of component parts, meaning that faults which develop cannot easily be rectified.
Systems – Lifts	85	State of repair of lifts and escalators was previously based on age of asset but is now assessed according to performance. This means that assets that are performing well may remain in operation for longer.
Systems - Escalators	91	
Systems – Power and Electrical, Mechanical, Fire and Comms	no SoGR available	The SoGR data for these systems remains weak for historic reasons. However, asset concerns are tracked as part of the annual Asset Condition Report. This data shows that between 2020 and 2023 there was a 7 per cent decrease in Code 1 (Legal Compliance) concerns across Mechanical, Fire and Comms systems but a 13 per cent increase in the number of Code 2 (Safety) concerns in the same time period. The £18m Asset Data Improvement project (which has just completed Gate A) includes a budget to improve data collection for this asset area.
Built Environment and Civils	no SoGR available	The SoGR data for buildings and civils remains weak for historic reasons. However, the £18m Asset Data Improvement project (which has just completed Gate A) includes a budget to improve data collection for this asset area.
Elizabeth line	no SoGR available	SoGR data is not yet available for the Elizabeth line as this is a new programme. A key part of work to set up the programme will involve putting in place systems to ensure accurate asset condition data is regularly recorded, and work on this is already underway. At present the focus of EL Renewals is on assets known to present a safety risk.

Appendix 2 – Impact of Reduced Investment in Assets

Table A2 – Incidents on the LU network relating to Asset Condition decline

Asset area	Number of incidents per asset area							% change 2018-2023
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (YTD)	
Track	382	390	333	333	671	625	306	64
Fleet (passenger)	1619	2116	3151	2936	6399	8453	2814	422
Logistics and Manufacturing - Engineering Vehicles	30	24	15	28	32	68	10	127
Signals	1701	1543	1082	1147	1426	1494	398	-12
Lifts and escalators	220	0	22	158	1092	1010	236	359
Power and electrical	117	18	30	20	73	28	5	-76
Mechanical, fire and Comms	117	197	138	175	219	180	53	54
Built Environment & Civils	9	14	6	16	38	86	26	856
TOTAL	4195	4302	4777	4813	9950	11944	3848	Overall 185%

Note: the table uses NACHS 5G data and shows a count of incidents with cause factors which are considered to relate to asset condition decline for the asset areas shown. The exception is Fleet, for which the cause factor 'No OK Stock' was used as a proxy for all cause factors to avoid double counting incidents where a rolling stock fault recorded one day was recorded as 'No OK Stock' the following day. Cause factors which are not relevant to asset condition (e.g. factors relating to staff or customer behaviour) have been excluded from the table.

Table A3 – Service impacts felt across LU since 2018 due to renewal deferrals

Network	Performance Metric	2018 Performance	Change (%age)	2024 Performance (Part Year)
LU Fleet	Mean Distance Between Failure (MDBF)	18,000 Kilometres	-28	13,000 Kilometres
	Case for Continued Safe Operation (CCSOs)	8	+75	14
LU Track	Total Track LCH (including Speed Restrictions)	874,000	+158	2,251,000
	Speed Restrictions LCH	78,000	+69	132,000
LU Signals	Total Signals LCH	2,300,000	+52	3,500,000
	Central line Signals Assets LCH	427,000	+66	710,000

Network	Performance Metric	2018 Performance	Change (age)	2024 Performance (Part Year)
LU Lifts	Availability	99%	-1.5	97.5%
	Step-free access lift availability – days per year	361	-5 days	356

Appendix 3: Budget Scenarios

The following strategic options will be considered during business planning:

- (a) **Long Term Plan:** Includes additional pressures compared to BP23 e.g. estates, RUC, staff welfare & updated cost estimates. Outcomes agreed in 2023 Business Planning unachievable due to the additional pressures. Majority of networks drop into Base and Constrained – increasing restrictions, disruption and closures. Material increase in opex, deferral of high priority projects – significant fares impact
- (b) **Final BP24:** Delivers a balanced plan across the Pan-TfL capex, opex and revenue portfolio. Accommodates some of the additional pressures. Some networks will be in Base and Constrained. Backloaded investment profile – upfront decline and an increasing backlog, increased opex pressures. Investment focused on protecting higher priority networks; disruption/delays and potential closures expected on networks that are not protected - will have a fare box impact on networks in Base and Constrained
- (c) **No Networks in Constrained:** Accommodates the additional pressures and delivers a mix of Average and Base as per original BP23. Assets still in decline and an increasing backlog, increased opex pressures but costs may be manageable. Investment focused on protecting higher priority networks; disruption/delays and potential closures expected on networks that are not protected - will have a fares impact
- (d) **Everything in Average in 9 Years:** Ramping up renewals to reduce backlog over 9 years and move all networks to Average or better. During the 9 years some networks will be in Base as the backlog is addressed; challenging delivery levels

Appendix 4: Business and customer impact of reduced investment in assets and mitigation actions taken

Programme	Business Risk	Activity / Output Risk	Outcome Risk	Actions being taken to mitigate risk
Signals	Increased component obsolescence, if parts not replaced	<ul style="list-style-type: none"> > Increased rate of failure due to component age > Longer time taken to repair failures 	<ul style="list-style-type: none"> > Service levels (frequency and journey time) 	<ul style="list-style-type: none"> > Close working with suppliers > Share spares > Harvest components
Track	Worse condition overall	<ul style="list-style-type: none"> > Increased noise and vibration > Increased wear and tear on rolling stock 	<ul style="list-style-type: none"> > Rolling stock maintenance costs > Service levels 	<ul style="list-style-type: none"> > Increased frequency of track inspections > Increased spend on reactive re-railing
Fleet - Passenger	Heavy overhaul does not take place on schedule	<ul style="list-style-type: none"> > Trains removed from service 	<ul style="list-style-type: none"> > Enforcement action taken by ORR through RVAR derogation > Service levels 	<ul style="list-style-type: none"> > Risk cannot be mitigated, non-negotiable safety requirement for periodicity to be met
Logistics - Engineering Vehicles (EV's)	Fewer EV's available to carry out inspections and maintenance	<ul style="list-style-type: none"> > Planned track and signal works programmes have to proceed more slowly 	<ul style="list-style-type: none"> > Service levels 	<ul style="list-style-type: none"> > Work planned to optimise utilisation and use of EV's
Built Environment	Increased likelihood of incident (eg. embankment collapse)	<ul style="list-style-type: none"> > Reduced resilience to extreme weather events > Staff cannot be acceptably accommodated 	<ul style="list-style-type: none"> > Frequency and severity of delays and disruption > Staff relations 	<ul style="list-style-type: none"> > Asset data improvement > Earth structures pipeline > Long-term strategy for staff welfare being developed
Safe Track Access	Increased risk of a major health and safety incident	<ul style="list-style-type: none"> > Measures to improve safe track access not introduced in timely fashion 	<ul style="list-style-type: none"> > Colleague safety 	<ul style="list-style-type: none"> > Existing systems being maintained
Systems - Lifts and Escalators	Overall condition of lifts and escalators declines	<ul style="list-style-type: none"> > Lifts and escalators taken out of service more frequently 	<ul style="list-style-type: none"> > Station operation 	<ul style="list-style-type: none"> > Worst performing / highest risk assets prioritised
Elizabeth Line	Overall condition of assets declines	<ul style="list-style-type: none"> > Some assets enter poor state of repair 	<ul style="list-style-type: none"> > Customer safety > Asset appearance, and TfL reputation 	<ul style="list-style-type: none"> > Risk based prioritisation > Database of assets and their condition created

Appendix 5: Delivery since last Committee submission and plan to next submission

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
Track		<p>Ballasted Track Renewal (BTR) Deliver 1750 metres of new LU BTR, improving reliability and reducing noise.</p> <p>Deep Tube Renewal (DTR) 1760 metres planned DTR</p> <p>Flat-Bottom Conversion to Bullhead Rail (FBC) 6600 metres planned Flat-Bottom Conversion to Bullhead Rail (FBC)</p> <p>Aldgate points and crossing renewal feasibility</p>	<p>Ballasted Track Renewal (BTR) 2,693 metres BTR delivered (913 metres more than target)</p> <p>Deep Tube Renewal (DTR) 1,762 metres DTR delivered (2m more than target)</p> <p>Flat-Bottom Conversion to Bullhead Rail (FBC) 7,796 metres FBC delivered (1196 metres more than target)</p> <p>Aldgate points and crossing renewal feasibility completed July 2024</p>	<p>Ballasted Track Renewal (BTR) 2024/25 Planned: 3392 metres 2025/26 Planned: 1670 metres 2026/27 Planned: 2194 metres</p> <p>Deep Tube Renewal (DTR) 2024/25 Planned: 3645 metres 2025/26 Planned: 3681 metres 2026/27 Planned: 3657 metres</p> <p>Flat-Bottom Conversion to Bullhead Rail (FBC) 2024/25 Planned: 7422 metres 2025/26 Planned: 7349 metres 2026/27 Planned: 7278 metres</p> <p>Aldgate points and crossing renewal detailed design (main works targeted to complete summer 2027)</p>
Fleet – Passenger	<p>Fleet Heavy Overhaul (FHO) and Central line Improvement Project</p>	<p>FHO Complete Central Line Rail Adhesion Train overhaul and scope Bakerloo Line overhaul.</p> <p>CLIP By March 2024, first CLIP train return to service. Production of five trains in AC14 (Train</p>	<p>FHO Complete Central Line Rail Adhesion Train overhaul completed and Bakerloo Line overhaul scoped.</p> <p>CLIP Operation of first CLIP train in November has reached a strategic milestone. Temporary storage</p>	<p>FHO Commence overhaul of Jubilee Line doors, S8 doors, Victoria Line programme lift, S Stock gangways and couplers and S7 programme lift.</p> <p>Continue with Bakerloo Line overhauls.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
	(CLIP)	<p>Modification Unit); accelerate Programme Lift and Heavy Overhauls scope. Confirmation of temporary storage facility for CLIP and manage supply chain impacts.</p> <p>Bakerloo Line RVAR Return first train into service and BL RVAR: delivered all trains with LEDs.</p> <p>Jubilee line Vehicle Underframe Modifications (JVUM) Invitation To Tender (ITT) to deliver a permanent fix to the underframe cracking.</p>	<p>facilities for CLIP confirmed and production line for Programme Lift and Heavy Overhauls established in AC14.</p> <p>Bakerloo Line RVAR BL RVAR delivered all trains with LEDs and fitted 12 trains with wheelchair bays. Public consultation for RVAR Exemptions completed.</p> <p>Jubilee line Vehicle Underframe Modifications (JVUM) JVUM: Contract awarded for underframe modifications.</p>	<p>Complete Jubilee Line programme lift, Victoria Line doors, couplers and level 7 tasks, Piccadilly Line life extension, D78 Rail Adhesion Train overhaul and S8 programme lift.</p> <p>CLIP By March 2025, five CLIP train and overhauled trains will return to service. contract award for seats overhaul and new doors.</p> <p>By March 2027, Waterloo & City line doors overhaul complete and Central line programme lift concessions met; storage facilities maximised for full production beat rate; seats overhaul commences.</p> <p>Bakerloo Line RVAR 50% wheelchair bays and grab poles by March 2025 and 100% by March 2027. PIS planned on 50% trains by then.</p> <p>Jubilee line Vehicle Underframe Modifications (JVUM) Developed designs by March 2025; commence prototyping and manufacturing by March 2027.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
Fleet - Engineering Vehicles	Engineering Vehicles	<p>Vehicle Overhaul Overhaul of three locomotives; one Matisa and one Plasser unit.</p> <p>Remote Track Monitoring (RTM) RTM concept designs to be reviewed to enable installation on existing general purpose wagons.</p> <p>Track Recording Vehicle (TRV) Sub-Surface Lines (SSL) Dynamic testing complete.</p> <p>Mechanised Renewals Vehicle (MRV) Phase 1 trials complete. Technical Requirements for Phase 2 complete.</p> <p><u>Wagon Overhaul</u> A new programme to set up an in-house facility to overhaul existing wagons in house so they can be retained in operation for longer has been set up.</p>	<p>Vehicle Overhaul Overhaul of locomotives has been initiated and is ongoing</p> <p>Remote Track Monitoring (RTM) A feasibility study for use of the RTM scanner on LU's existing GP wagons has been completed. Option assessment is now underway.</p> <p>SSL Dynamic testing has been delayed due to problems with the aging TRV which prevented access.</p> <p>Mechanised Renewals Vehicle (MRV) Trials have taken longer than anticipated due to the need to fully satisfy SHE requirements for testing.</p> <p>Wagon Overhaul Work on the first 3 wagons has been initiated. These first overhauls are being used to train technicians in the work required.</p>	<p>Vehicle Overhaul 11 out of 29 battery locos will have completed overhaul by March 2027</p> <p>Remote Track Monitoring (RTM) Work to complete the RTM project is expected to be complete by November 2027. By March 2027 delivery should be well underway.</p> <p>TRV SSL Project G5 forecast for January 2025</p> <p>Mechanised Renewals Vehicle (MRV) Project Gate 5 forecast for February 2025. Phase 2 of the project will be initiated in February 2026 following an assessment period of 1 year.</p> <p>Wagon Overhaul New Wagon Overhaul Facility set up, enabling full wagon overhauls to be carried out internally and working to a beat rate of approximately two wagons per month.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
Signals and control	Signalling renewals and incremental upgrade projects	<p>Central line signalling and control life extension (CLSLE) Completion of detailed design for two further packages of work and commencement on site installation works.</p> <p>Northumberland Park depot (NPD) re-signalling Concept design completed and tendering commenced.</p> <p>(PCBs) Removal of all Polychlorinated Biphenyls (PCBs) containing capacitors</p> <p>Acton Town IMR signalling room rewiring Project to be delivered by maintenance, expectation Thales wiring would be removed. PICU Extra</p> <p>Bakerloo Line Upgrade Project (BCUP) Detailed Design for Control Room Fit out Works completed. Passenger Information System (PIS) phase 1 surveys completed.</p>	<p>Central line signalling and control life extension (CLSLE) On site installation of both projects underway, 17 stages on SLE Signalling complete. On C & I phase 2 complete and other phases being planned.</p> <p>Northumberland Park depot (NPD) re-signalling Re-signalling: project paused following strategic decision to prioritise Piccadilly line upgrade and develop a technical solution. Documentation completed to allow a swifter recommencement of the project in future. This will be hampered by the delay and influenced by engineering resource available</p> <p>Acton Town IMR signalling room rewiring Thales wiring have been removed. Removal of PICU wiring only. PICU fuses removed. ~ 590 out of 700 PICU wires have been removed (completed end October 2023)</p> <p>BCUP</p>	<p>Central line signalling and control life extension (CLSLE) Both projects expected to be complete.</p> <p>Northumberland Park depot (NPD) re-signalling If this project commences it will concentrate on Concept design, it is expected to be a slow burner bringing resources on board and also concentrating on fundamental pathway documentation looking towards reestablishing concepts.</p> <p>(PCBs) Project complete</p> <p>Acton Town IMR signalling room rewiring This stage of the wire degradation project is expected to be complete.</p> <p>BCUP mTRAC control system is commissioned and in service. Control Room Fit out Works completed. PIS Installation Works 80% complete.</p> <p>CSIP</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
		<p>CSIP Contract Award for ECI stage - Scope requirements for Work Package 1 (WP1) to be confirmed at this stage to enable issue of an Option A/C contract</p>	<p>Contract award for Control Room Fit out Works and detailed design commenced. PIS phase 1 surveys completed.</p> <p>CSIP Negotiation for the ECI contract award. Approval of a change request for the additional costs to cover the agreed negotiated cost for the ECI stage.</p>	<p>Contract Award - NEC3 Option C for Work Package 1 - Wayside East. Concept design - WP1 Signalling completed. Stage Gate 3 - WP1 Signalling. Stage Gate 3 - Enabling Works</p>
Railway System Enhancements	Rolling stock	<p>Brake Glazing Delivery of final software on JL and design Compliance on NL prior to handing over to Fleet.</p> <p>Northern Line Train Management System (TMS) Software delivered and commissioned on whole NL Fleet</p> <p>Neasden Depot Injection Rates Neasden Depot Injection Rates in support of planned 4LM timetable improvements. Full close out and Gate 6 of Power Package 1 Project in 23/24.</p>	<p>Brake Glazing NL design compliance is complete. Final software contract for both lines (JL & NL) awarded in May 2024. The final software delivery is delayed by a year due to lack of third party (Alstom) resources.</p> <p>Northern Line Train Management System (TMS) Software delivery is delayed due to Alstom/Villeurbanne resource constraint.</p> <p>Neasden Depot Injection Rates Project successfully delivered and closed in Oct 2023:</p>	<p>Brake Glazing Delivery of final software on JL & NL for testing and assurance to complete in 2024/25. Full fleet roll out and project closure in 2025/26.</p> <p>Northern Line Train Management System (TMS) Software testing to 50% complete in 2024/25 and delivery to complete in July 26</p>
Railway Systems Enhancements	Power Network	<p>Power Package 1 Project close-out. Upgrades to the High Voltage</p>	<p>Power Package 1 Main work has successfully delivered. Only defect clearance</p>	<p>Power Package 1 Full close out and Gate 6 of Power Package 1 Project in 24/25.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
ts		<p>network to support service levels on the Northern line - works completed in 21/22. Full close and stage gate 6 in 2023/24</p> <p>Power Package 2 Commencement of works to restore Northern line power system resilience. - Batch C scope (Direct Current (DC) Feeders at Elephant & Castle and Leicester Square) Tender review and award. - Batch D CDS completion for tendering</p>	<p>and documentation outstanding, due to supplier delays.</p> <p>Power Package 2 Delayed due to resource prioritisation and alignment with Piccadilly Line Upgrade (PLU) programme. - Batch C scope (DC Feeders at Elephant and Castle and Leicester Square) – Contract awarded. - Batch D - Final CDS complete, tender received and under review. Contract award for Nov 2024.</p>	<p>Power Package 2 Completion of Power Package 2 works on the Northern line to reinstate power system resilience in Oct 2026</p>
Railway Systems Enhancements	Signalling and Control	<p>Jubilee Line (JL2) Design, build and commission Vehicle Control Centre (VCC) and Service Management Centre (SMC) software to rectify Manual Route Reservation (MRR) and Fouling Point (FP) safety issues, remove associated Operational Restriction (OR) and commission Battery Loco 'B' modifications on the JL. Northern Line WTT58 Complete Factory Acceptance Testing (FAT)</p> <p>NLE final signalling software drop</p>	<p>Jubilee line (JL2) The delivery of software is delayed by a year due to Thales/Hitachi competing resource requirement for 4LM / SMA8. The delivery of project start after SMA8 (Jan 2025).</p> <p>Northern Line WTT58 FAT completed.</p> <p>NLE final signalling software drop On target for Nov 2024.</p>	<p>Jubilee line (JL2) Delivery of software full close out of the project.</p> <p>Northern Line WTT58 Completion of final software and project closure in 2025.</p> <p>NLE final signalling software drop NLE commissioning of final NLE signalling software drop and project closure in 2025.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
		Complete FAT.		
Systems – Lifts and Escalators Comms		<p>One Primary Mode of Vertical Transport (PMVT) lift replacement at Holloway Road.</p> <p>One escalator replacement.</p> <p>Seven escalator refurbishments.</p> <p>Two passenger conveyor refurbishments.</p>	<p>One escalator replacement.</p> <p>Seven escalator refurbishments.</p> <p>Two passenger conveyor refurbishments.</p>	<p>Seventeen Escalators will be renewed across TfL.</p> <p>Fifteen Lifts replaced.</p> <p>Twelve Secondary Mode of Vertical Transport (SMTV) Lifts</p>
Systems – P&E, Mech, Fire and Comms		<p>Mechanical and Comms Renewals of assets to maintain performance. Station communication upgrades of public address systems, help points, CCTV, station management systems. Improved surveillance for drivers of gaps at platforms for passengers boarding and alighting. Replace obsolete equipment. Renew ventilation systems, machine chambers, air control, heating and pump equipment.</p> <p>Fire Systems Renewals of existing hydrants and detection equipment to standards, scoping work to inform future</p>	<p>Mechanical and Comms Continuation of design work for heating and water pumps. Continuation of depot smoke dampers work at Bermondsey and Stratford Market depot. Platform air handling units concept designs complete and tranches 4 to 6 in delivery. Kings Cross comms upgrade completed. St James Park comms upgrade in detailed design. Emergency voice communications in detailed design.</p> <p>Fire Systems Jubilee line Extension Tunnel and Down Street Ventilation projects in delivery. Victoria line Mid Tunnel Ventilation Project in design.</p>	<p>Mechanical and Comms PCB and Paxolin Asbestos removal works completed. Bermondsey and Stratford Market depot smoke dampers work completed. Platform air handling units ‘OPO Gaps obscured views’ tranche 1 delivered. Tranches 4 to 6 complete. St James Park comms upgrade complete.</p> <p>Fire Systems Jubilee line Extension Tunnel and Down Street Ventilation projects completed. Victoria line Mid Tunnel Ventilation Project in delivery. Replacement fire panels in delivery. Station Fire Hydrant Systems in delivery and Depot Fire Hydrant system in detail design.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
		<p>design for renewing systems</p> <p>Power and Electrical Legislative requirement to remove hazardous chemicals used in capacitors, replace obsolete/end of life equipment, improve power distribution, renew air circuit breakers, purchase spares, depot lighting.</p>	<p>Replacement fire panels completed design and waiting tender. Station Fire Hydrant Systems ready for tender</p> <p>Power and Electrical Replaced 20 OLBIs, Upgraded 2 Greenwich Generator Control Systems, Installed new Holborn DC Switchboard and now ready for commissioning. Completed Northern Line Supervisory Control and Data Acquisition system Migration</p> <p>Replaced 9 Station UPS's LED conversion of Oxford Circus Station (2500 lights) and 14 small stations LED conversions at 4 Depots (5500 lights) & new emergency lighting</p>	<p>Power and Electrical Continuation of the workbank activities to deliver projects addressing safety and legislative concerns across the network., Replacement of gas turbine number two at GGS, contract award for power quality controllers, rolling programmes of OLBI and UPS' established and contracts awarded, delivering up to 40 further sites per year. Replacement of JNP/BCV Sidings traction isolation switches.</p>
	Civils	<p>Earth Structures Three earth structure stabilisation projects completed on site, CTS10 (Chorleywood to Rickmansworth), CTS4 (Park Royal), CST4B (Chigwell to Grange Hill) One earth structure stabilisation project issued to tender - EM3 Canons Park to Queensbury</p>	<p>Earth Structures Three earth structure stabilisation projects completed on site, CTS10 (Chorleywood to Rickmansworth), CTS4 (Park Royal), CST4B (Chigwell to Grange Hill) One earth structure stabilisation project issued to tender - EM3 Canons Park to Queensbury</p>	<p>Earth Structures Three earth structures stabilisation projects fully handed over into maintenance EM3 Canons Park to Queensbury completed on site EM3 East Acton completed on site Pipeline: Three earth structure stabilisation projects commenced</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
		<p>Pipeline: Five earth structure stabilisation projects - surveys and feasibility design commenced and ongoing</p> <p>Assessments 23 bridges and structures assessments completed. 15 earth structures assessments completed.</p> <p>Bridges and Structures London Road Tunnel Water Ingress - design completed, contract awarded, and site works mobilised Stonebridge Park depot - Lighting Column scope completed, two column heads replaced. Barons Court (column and canopy) design complete, heritage approval granted, procurement completed Design and build at six earthworks locations.</p> <p>Design and build of renewals at a further twelve earthworks structures. Design and build at one depot Complete feasibility at five stations</p>	<p>One earth structure stabilisation project initiated - EM3 East Acton Pipeline: Five earth structure stabilisation projects - surveys and feasibility design commenced and ongoing.</p> <p>Assessments 23 bridges and structures assessments completed 15 earth structures assessments completed</p> <p>Bridges and Structures London Road Tunnel Water Ingress - design completed, contract awarded, and site works mobilised. Stonebridge Park depot - Lighting Column scope completed, two column heads replaced, one column removed HB42 Bridge - Project initiated and concept design commenced. Barons Court (column and canopy) design complete, heritage approval granted, procurement ongoing.</p>	<p>on site with site works ongoing. Two earth structure stabilisation projects completed on site.</p> <p>Assessments Continuation of annual assessments programme Continuation of annual assessments programme</p> <p>Bridges and Structures London Road tunnel project completed. HB42 bridge remediation completed. Barons Court canopy and column refurbishment project completed. Continuation of assessments programmes for Earth Structures and Bridges and Structures Detailed designs completed for five earth structure remediation projects, with intrusive surveys (ground investigations) completed. Canons Park to Queensbury EM3 Embankment to have commenced on site.</p> <p>London Road tunnel project completed. Barons Court canopy and column</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
		<p>of railway structure asset renewals. Completion and close out of Bakerloo RVAR project</p>		<p>refurbishment project completed. Wembley Brook project to have commenced on site.</p> <p>R3 Footbridge to have commenced on site.</p> <p>Stonebridge Park depot lighting works to be completed. Designs completed for new projects not yet initiated, prioritisation/business planning required. Examples may include HB40 bridge, 070 footbridge.</p>
	<p>Staff Welfare</p>	<p>Renewals completed at eight locations.</p> <p>Options development commenced for 20 T2 locations. Start on site T3 Phase 1.</p> <p>Options development completed for Earls Court</p> <p>Mobilise an additional Tranche of work</p>	<p>Renewals completed at eight locations.</p> <p>Ten pipeline locations selected to enable a further tranche of work. Options development completed for all 20 T2 locations. Prioritisation process developed.</p> <p>Contract award and works started on site for T3 Phase 1; Goldhawk Rd, Westbourne Park, Royal Oak.</p> <p>Options development completed for Earls Court.</p>	<p>Rolling programme with renewals completed at further locations each year.</p> <p>Pipeline sites identified and prioritised for next five years of delivery.</p> <p>Call off contract let and being utilised for delivery.</p> <p>Fully resourced in house design team delivering value for money rolling programme of designs for site delivery.</p>

Sub-programme	Asset group	Expected outputs by March 2024	Actual outputs March 2024	Expected outputs to March 2027
Safe Track Access		<p>Close signage project.</p> <p>Start design of the new Permanent Conductor Rail Indicator Device (P-CRID), start surveys.</p> <p>Commence the system modification for Sentinel to configure it for use with TfL Competencies and TfL Systems.</p>	<p>Signage project closed.</p> <p>P-CRID product design started with Concept Design Statement completed and approved.</p> <p>Commenced the system modification for Sentinel to configure it for use with TfL Competencies and TfL Systems.</p>	<p>New P-CRID product designed and accepted (2025/26).</p> <p>Installation of P-CRID underway (due to complete in 2027/28).</p> <p>Completion of Competency Management System change from SCL Database to Sentinel system (2024/2025)</p>
Elizabeth line	ELARP	<p>Initiation of the re-railing programme with the first site being Connaught Tunnel.</p> <p>Initiation of the points rectification programme.</p> <p>The initiation of a programme to bring the former GE line stations in line with Elizabeth line stations in the central operating section.</p>	<p>249 metres of rail was replaced in Connaught Tunnel.</p> <p>The points rectification has commenced with the first works completed at Customs House.</p> <p>Surveys completed and will be used to inform future years work on the GE line stations.</p>	<p>Expected future outputs:</p> <ul style="list-style-type: none"> - Platform works completed at Chadwell Heath and Harold Wood stations. - Roof works completed at Chadwell Heath, Maryland, Goodmayes, Harold Wood and Ilford Stations - Staircase and stair roofs replaced at Seven Kings Station. - Initiation of the GE Station LED Lighting Replacement Project.

Date: 3 October 2024

Item 12: Bank Station Capacity Upgrade

This paper will be considered in public

1 Summary

Bank Station Capacity Upgrade (BSCU)					
	Existing Financial Authority*	Estimated Final Cost (EFC)	Existing Programme and Project Authority	Additional Authority Requested	Total Programme and Project Authority
Gross Cost	£701.16m	£706.09m	£702.01m	£4.08m	£706.09m
Gross Income	£1.22m	£2.78m	£0.97m	£1.81m	£2.78m
Net Cost	£699.94m	£703.31m	£701.04m	£2.27m	£703.31m

Table 1 - Summary of Financial Authority and Programme and Project Authority

*Existing Financial Authority equates to actual costs incurred up to Period 13 2023/24, TfL Budget for 2024/25, Business Plan for 2025/26 and 2026/27.

- 1.1 This paper provides an update on the Bank Station Capacity Upgrade (BSCU) progress and includes a request for additional, unbudgeted Financial Authority and additional Programme and Project Authority for the project.
- 1.2 A paper is included in 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:**
 - (a) **approve additional, unbudgeted Financial Authority for the Bank Station Capacity Upgrade of £4.93m, giving a total Financial Authority of £706.09m;**

- (b) approve additional Programme and Project Authority of £4.08m, giving a total Programme and Project Authority of £706.09m; and**
- (c) note that additional Procurement Authority will be sought at Officer level in accordance with Standing Orders.**

3 Background

- 3.1 The overarching aim of the BSCU project is to ensure that we continue to provide a fit-for-purpose station to support the financial district of the City of London (CoL).
- 3.2 The four primary objectives for the project are to:
 - (a) increase capacity – to account for future forecast demand principally for Northern line and DLR, including associated interchange routes;
 - (b) minimise journey times – by reducing congestion as well as improving access/egress/interchange walking times;
 - (c) provide step-free access – from street to both Northern line and DLR, as well as interchange between the two; and
 - (d) compliant emergency fire and evacuation – for Northern line and DLR, enabling a place of safety to be reached within the prescribed time limits.
- 3.3 The project has brought into use the following new infrastructure at Bank station:
 - (a) a new station entrance hall at Cannon Street with lifts and escalator connections;
 - (b) a new Northern line passenger concourse using the existing southbound platform tunnel;
 - (c) a new Northern line southbound train tunnel and platform tunnel;
 - (d) new internal passenger connections between the Northern line, the DLR and the Central line; and
 - (e) a new pedestrian crossing on Cannon Street.
- 3.4 Planned completion of the works relating to the station assets is expected by Quarter 4 2024/25, and the entire BSCU project scope (including Arthur Street reinstatement) by Quarter 3 2026/27.
- 3.5 The project has transformed Bank station, delivered new infrastructure that has provided significant improvements to the journey experience of our customers with reduction in delays, greater accessibility and safety, and improved service reliability.

- 3.6 Recent surveys (April 2024) indicate average journey time savings of up to three minutes for customers interchanging between Northern line and DLR platforms, one minute between Central line and Northern line platforms, and five minutes between the Northern line and Cannon Street entrance, when compared to the previous surveys undertaken prior to BSCU works in 2018.

4 Progress

- 4.1 In February 2023, 10 years after the commencement of the BSCU main contract, the final phase of customer benefits was brought into use with the opening of the new station entrance on Cannon Street. The main elements of the BSCU project delivered to-date are shown in Table 2 below:

Main elements delivered to-date	Timeline
A new southbound Northern line platform and concourse	Opened May 2022
A new, more direct interchange route between the Northern line and DLR with three escalators	Opened October 2022
A new, quicker interchange route between the Northern and Central lines, with two 100-metre moving walkways and three escalators	Opened October 2022
A new station entrance, including two lifts giving access to the Northern line	Opened Feb 2023
A new pedestrian crossing on Cannon Street	Opened March 2024
Upper Thames Street - Arthur Street junction signalling modifications, new pedestrian crossings and resurfacing	Completed August 2024

Table 2 – Main elements delivered and timeline

- 4.2 BSCU works that remain outstanding are shown in Table 3 below:

Outstanding works
Gas extraction system replacement
Backfill of shaft at Arthur Street
Enhancement of the public realm including highway reinstatement at Arthur Street
King William Street - Arthur Street junction modifications
33 King William Street building repairs and facade reinstatement

Table 3 – Outstanding BSCU works

- 4.3 There have been no major changes to the overall project scope, apart from additional highway works including provision of a new Cannon Street pedestrian crossing, as well as Arthur Street public realm and junction improvements at both Upper Thames Street and King William Street.

- 4.4 The project has experienced some delays in relation to works completion and the discharging of consents, as required in the Transport and Works Act Order (TWAO), which are described further in the related paper on Part 2 of the agenda.
- 4.5 The latest estimated final cost (EFC) forecast for the project is around £94m lower than the initial cost estimate at the pre-TWAO design stage in 2010, with savings achieved through the use of an Innovative Contractor Engagement procurement process. However, the current project EFC is projected to exceed the existing Financial Authority by £4.93m and Programme and Project Authority by £4.08m, as explained in the paper on Part 2 of the agenda and therefore additional Authorities are requested.

5 Financial update

- 5.1 Table 4 below summarises the evolution of the EFC for BSCU since 2020. The outturn cost for the project at the pre-TWAO design stage in 2010 was estimated to be around £800m, with a Benefit-Cost Ratio (BCR) of 2:1.

Stage of Project £m	EFC £m	Reason for change	BCR
2010: Design stage	around £800	-	2:1
2020: Programme and Project Authority increased from £655.74 to £701.06	£701.06	Programme and Project Authority increased due to prolongation events including termination of fitout sub-contractor and redesign, two terrorist attacks (London Bridge), removal of programme optimisation and coronavirus pandemic.	3:1
2021: Programme and Project Authority increased to £702.01	£702.01	Programme and Project Authority adjusted to reflect project income.	3:1
2024: Programme and Project Authority requested to be increased from current £702.01	£706.09	BSCU EFC at Period 5 2024/25.	3:1

Table 4 - Evolution of EFC

- 5.2 The BSCU project income has increased from £0.97m in 2021 to £2.78m to reflect a contribution of planning contribution income from CoL (as a result of 40 Leadenhall Triangle and 33 King William Street development).
- 5.3 The Programme and Project Authority increase of £4.08m is requested to ensure we have sufficient Programme and Project Authority based on the current EFC at Period 5 2024/25.

- 5.4 The project team continues to actively manage and mitigate the forecast risk position to reduce the project EFC. The projects risk position gets reviewed by the project team on a periodic basis, assessing and updating the risk exposure, risk probability and mitigation actions based upon the latest known information.

6 Assurance

- 6.1 A separate second line assurance review was not considered appropriate, as the process of continuous assurance and ongoing discussion with the project team has kept Project Assurance fully briefed.

List of appendices to this report:

Appendix 1: Bank Station Capacity Upgrade Photos

List of Background Papers:

None

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

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

Appendix 1: BSCU Photos



Figure 1: Arthur Street shaft
(photo taken on May 2024, remains as is)



Figure 2: Cannon Street entrance

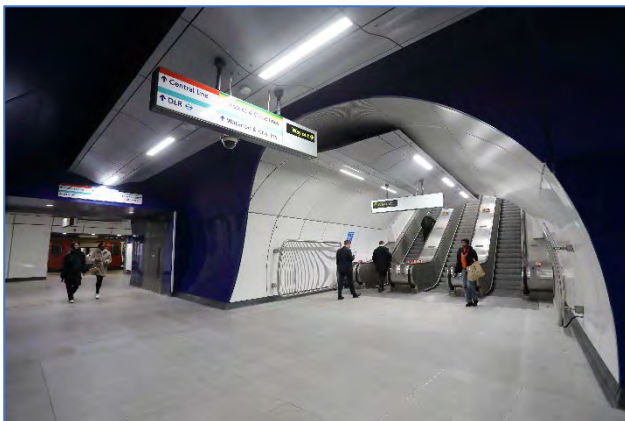


Figure 3: Escalators to Cannon Street entrance

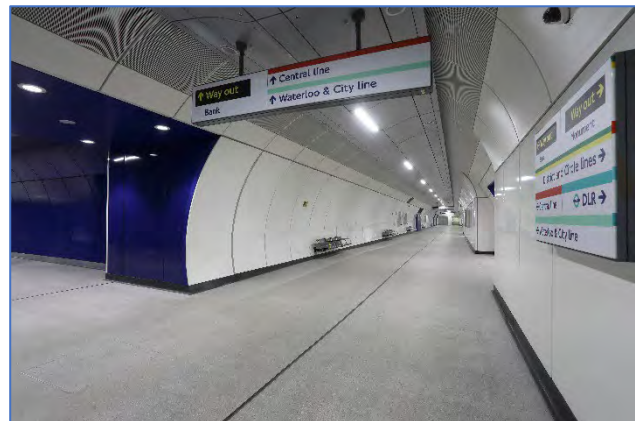


Figure 4: Interchange concourse

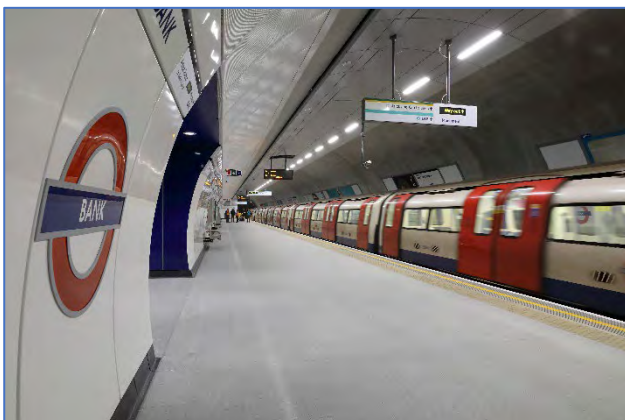


Figure 5: Northern line southbound platform

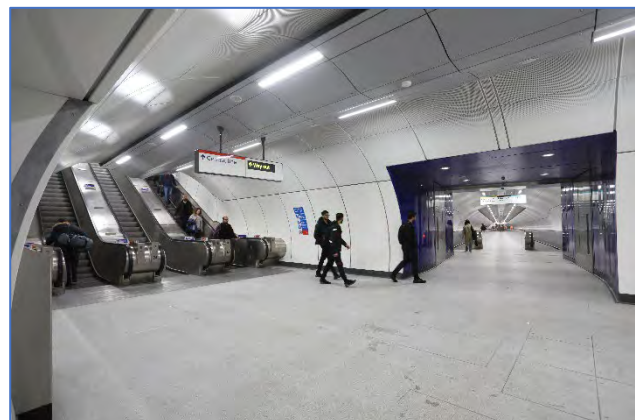


Figure 6: Escalators to Central line

Date: 3 October 2024

Item 13: Capital Efficiencies Report 2023/24

This paper will be considered in public

1 Summary

- 1.1 This paper updates the Committee on the Capital Efficiencies Report 2023/24, together with progress during 2024/25.
- 1.2 While TfL has exceeded its target range in each of 2021/22 and 2022/23, and achieved within the target range for 2023/24, in each case this was achieved almost entirely through a 'bottom up' approach on a project-by-project basis, rather than a top-down approach. Without long-term funding certainty and the ability to plan works, and without an increased level of funding to include more early-stage projects, it becomes increasingly harder for TfL to achieve efficiencies.
- 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 paper provides the Committee with a summary of the Capital Efficiencies Report included at Appendix 1, which sets out how TfL has progressed and delivered on its targeted initiatives and milestones, together with the efficiencies realised during the year.
- 3.2 Delivering capital efficiencies:
 - (a) allows us to deliver better outcomes within a given financial envelope, getting us closer to delivering the objectives in the Mayor's Transport Strategy;
 - (b) demonstrates to industry and our supply chain that we are serious about working together to improve how we deliver; and
 - (c) provides transparency in our capital delivery performance to stakeholders.

3.3 As well as being TfL's annual report on capital efficiencies, this is also a requirement of the Department for Transport funding letter of 18 December 2023, whereby TfL "will continue to identify and realise capital efficiencies in its capital programme." TfL is also required to update Government on identifying and realising capital efficiencies and will do so through the Oversight Group meetings that will continue throughout 2024.

4 Progress Update

4.1 In our original Capital Efficiencies Plan, we targeted a multi-year efficiencies profile, recognising that initiatives take time to impact on costs, the profile ramps up with a target range in each year.

4.2 The Capital Efficiencies Target range for 2023/24 was based on planned spend as set out in TfL's 2024 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.

4.3 The lack of long-term capital funding certainty over this period, and continued uncertainty over funding beyond 2024/25, creates significant risk to achieving efficiencies in two main ways, namely long-term planning and the impact of project/scope reductions.

4.4 During 2023/24, TfL achieved £43m of efficiencies, exceeding the lower end of the Efficiencies Target range for 2023/24 of £32m. While this is below the upper end of £51m, this is still a considerable achievement when taking into account the challenges discussed above in relation to the short-term nature of recent capital funding agreements.

4.5 During 2023/24, TfL was also able to reduce its capital expenditure through making savings which did not fully meet the criteria of an efficiency. TfL has also saved approximately £100m through circumstances such as favourable inflation, exchange rate, mitigation of risks and other movements.

4.6 Since last year's report, TfL continues to deliver efficiencies but, to gain greater synergy between our business as usual activities and other change improvement programmes, the original workstreams have been rationalised to focus on:

- (a) project controls;
- (b) investment governance;
- (c) procurement and commercial;
- (d) engineering and asset strategy;
- (e) access; and
- (f) resourcing (primarily project management).

4.7 Furthermore, many of the workstreams will only impact on projects not yet in delivery. For example, to meet efficiencies targets, projects in their early stage will likely have to deliver greater percentage saving against their forecast than projects already in construction will need to deliver.

List of appendices to this report:

Appendix 1: Capital Efficiencies Report 2023/24

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

Appendix 1: 2023/24 Annual Capital Efficiencies Report

1 Introduction

This is TfL's third annual Capital Efficiencies Report, covering the financial year 2023/24. It sets out how we have progressed and delivered on targeted initiatives and milestones, together with the efficiencies realised during the year. Delivering capital efficiencies:

- allows us to deliver better outcomes within a given financial envelope, getting us closer to delivering the objectives in the Mayor's Transport Strategy;
- demonstrates to industry and our supply chain that we are serious about working together to improve how we deliver;
- provides transparency in our capital delivery performance to stakeholders.

2 Efficiencies target range

In our original Capital Efficiencies Plan (CEP), we targeted a multi-year efficiencies profile from 2021/22. 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.

The lack of long-term capital funding certainty over this period, and continued uncertainty over funding beyond 2024/25, creates significant risk to achieving efficiencies in two main ways:

- **Long-term planning:** Certainty in planning and funding creates an environment conducive to efficient investment. The Department for Transport's (DfT) 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 and 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; and
- **Impact of project/scope reductions:** If TfL has to reduce its forecast capital expenditure, that will directly 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 DfT funding letter of 18 December 2023 provided TfL with capital funding certainty to March 2025, although it was only a one year settlement. While welcome, this is still less than requested and significantly less than the longer term previously envisaged.

The Capital Efficiencies Target range for 2023/24 was based on planned spend as set out TfL's 2024 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.

3 Total value of efficiencies

During 2023/24, TfL achieved £43m of efficiencies, exceeding the lower end of the Efficiencies Target range for 2023/24 of £32m. While this is below the upper end of £51m, this is still a considerable achievement when taking into account the challenges discussed above in relation to the short-term nature of recent capital funding agreements.

4 Additional Achievements – Savings

During 2023/24, TfL was also able to reduce its capital expenditure through making savings which did not fully meet the criteria of an efficiency. These have been reported internally to incentivise teams to try to reduce costs but are not included in DfT Efficiency reporting.

TfL has saved approximately £100m through circumstances such as favourable inflation, exchange rate, mitigation of risks and other movements. This includes items raised as efficiencies which were not able to supply evidence that they meet the criteria.

5 Additional Achievements – Procurement cost avoidance

Efficiencies and savings identified above, both resulted in cashable reductions in TfL capital expenditure. TfL's Procurement team have additionally taken a number of actions to reduce TfL's contracting costs. However, in some cases, for example where inflation moved adverse to Budget assumptions, the reduced cost that they negotiated was not less than the Budget and so does not meet the efficiency definition of "cashable reduction against Budget".

TfL is also looking at improving the reporting and validation of these procurement activities during the forthcoming year, which help TfL achieve its objectives by avoiding cost increases above budget by taking management action. The costs avoided during 2023/24, excluding those counted in either of the categories above, are within a range of £10m to £25m.

6 Progress commentary

Since last year's report, TfL continues to deliver efficiencies but, to gain greater synergy between our business as usual activities and other change improvement programmes, the original CEP workstreams have been rationalised. As shown in the table below some workstreams will deliver cashable efficiencies directly, others will improve efficiency indirectly.

Categories		
Project controls	Workstreams aligned to efficiencies initiatives	Indirect
Investment governance		Indirect
Procurement and Commercial		Direct
Engineering and Asset Strategy		Direct and Indirect
Access		Direct
Internal resourcing	Aligned to business as usual efficiency activities	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 activities, rather than direct cashable efficiencies. However, 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.

Furthermore, many of the workstreams will only impact on projects not yet in delivery. For example, to meet efficiencies targets, projects in their early stage will likely have to deliver greater percentage saving against their forecast than projects already in construction will need to deliver. In addition, some activities originating from CEP will be delivered through the Our TfL Programme (OTP) change programme.

6.1 Project Controls

6.1.1 Overview

TfL has mature processes for controlling projects (Pathway) and there is a recognition that universal adoption across the business continues to increase 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.

6.1.2 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.

The first tranche of improvements is expected to be embedded into the business by spring 2025 and includes 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 across capital delivery. The tool will give us the ability to present any significant changes to the Executive team. Ultimately the tool will allow us to collate changes cause across the business to drive efficiency.

Pathway Improvements (in progress)

Pathway is the delivery process mandated to all TfL projects. The content is kept up to date based on a rolling three-year review cycle as part of our business as usual processes; working with subject matter experts to ensure the integrity of the content is maintained, it is fit for purpose and scalable to meet our diverse investment portfolio needs while continuously looking to improve our delivery processes.

Development of the Quality Strategy (Complete)

With the establishment of the Chief Capital Office and focus on aligning project delivery across the organisation, we took the opportunity to develop a Quality Strategy that reflects the new organisation and to establish and embed a Quality Policy.

We have also taken the opportunity to introduce standardised contract works information to 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.

6.1.3 Look Ahead

Reporting improvement programme (in progress)

The introduction of consistent collation of project data and progress through an integrated approach will enable the 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 will then be expanded to deliver periodic reports for project, programme and portfolio levels. Reducing the amount of manual data handling allowing more focus on value-add activity such as streamlining processes and improving data quality; enabling a consistent way for project and sponsorship teams to interact and utilise the new suite of reports.

Systems and data – build out improvements plan (in progress)

The systems improvements, 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. Considerable work undertaken to date includes data quality improvements to provide a solid foundation for the embedment of future improvements. It is aligned to the TfL data strategy and is based on industry best practice. This will provide an absolute version of the truth, integrating disparate data sets allowing them to be interrogated for patterns that will support organisational learning, and more robust management decisions.

Implement Standardised Performance Reporting

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 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.

6.2 Investment Governance

6.2.1 Overview

This workstream is focusing on a more holistic and integrated 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, enabled by efficient decision-making processes with the right people capabilities.

How will this make us more efficient? This workstream will align investment governance to our Executive 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.

6.2.2 Initiatives – in year progress

Updated appraisal guidance and tools to enhance Value for Money evidence (in progress)

At the end of 2023 new, simplified guidance was rolled out. Significant engagement and thought has been given to the scalability of business cases with a scaling tool is being developed that will guide how cases can be scaled. This has been developed to integrate with other core processes.

Early Pathway stages and business case decision points have been aligned to improve the focus on business cases informing decisions rather than reflecting them after the decision has been made.

A culture of continuous improvement is in place translating changes / requirements / new tools into the practitioner community, along with aligning TfL and Government analytical approaches to support successful bids for Government funding.

Implementing recommended changes to Programme Structures (in progress)

The new Programme structure was approved by the Committee in May 2023, with changes being implemented across TfL's systems, governance and reporting structures by July 2023. A review of internal governance was undertaken between October 2023 and January 2024, with an improvement roadmap agreed as part of the OTP Investment Governance sub-workstream. Initial tranche of improvements has been delivered, which centre around a consistent work-breakdown structure below the Investment Programme, consolidation of attendees and reduced meeting packs. Further improvements underway focus on reporting improvements, enhanced investment prioritisation and decision-making, clarity and efficiency around internal decision-making.

6.2.3 Look Ahead

Pathway Stage 7 / E – 'Post Implementation Review' (in progress)

A new Pathway Stage, focussed on 'Post-implementation Review' will be embedded during 2024 to ensure our investments are optimised, delivering value for money, and are achieving the impacts we expected.

6.3 Procurement and Commercial

6.3.1 Overview

This workstream focuses on all the benefits achieved by procurement and commercial (P&C) activity. These include items which enable "cost avoidance" which do not count as efficiencies.

Commercial activity spans the full project lifecycle, aiming to maximise the value we get out of our supply chain partners by having the right market, procurement, contracting, and relationship strategies to drive business outcomes and create the right commercial environment for efficient delivery.

These initiatives will review all elements of our commercial lifecycle approach and how they interact with other Capital Efficiencies 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 this workstream is recognised as a key impact opportunity area for increasing our direct efficiencies.

6.3.2 In year progress

This year the P&C team has focused on continuous improvement which has included the following:

Strategic Framework Contracting and Review of TfL Terms and Conditions

P&C has progressed its strategy for establishing new frameworks that will enable TfL to access works and services required to renew or enhance its rail assets and infrastructure ('next generation frameworks'). This has included a review of the contract terms and conditions, including whether we move to NEC4 as a standard across TfL. Engagement with the market on these new frameworks has commenced.

Pipeline and Supply Chain Engagement

TfL has experienced high volatility in its investment programme and procurement pipeline over recent years impacting our ability to plan strategic procurement, market appetite and confidence. The focus has been on rebuilding our long-term pipeline aligned to TfL's long term plans and Capital Strategy, aiming to identify current best practice in infrastructure market engagement, setting a structured approach and using our pipeline to secure early contractor input to delivery models, testing appetite for our procurement and contracting strategies. The pipeline was shared in the summer of 2023/24 (with plans to share on an ongoing basis) and an event was held with the market to discuss.

All Staff Commercial Training

Capital delivery utilise multiple options of the NEC form of contract, with varying degrees of contract knowledge and expertise within the delivery teams. P&C have taken the opportunity to rollout all staff commercial training helping to avoid, mitigate and manage costly disputes and better manage the cost of change.

6.3.3 Look Ahead

The Capital Improvement Plan initiative was formally concluded at the end of March. Work across several of the workstreams will continue and be incorporated into a broader P&C Change Programme (initiated in Quarter 3 of 2023/24) and will include the following initiatives:

Building a more consistent approach to Cost Management

The purpose of this is to map existing cost management best practice including resource capability to standardise processes and products across P&C Capital and establish interfaces with other functions within TfL to achieve greater efficiencies.

Improving our Estimating and Cost Intelligence Capability

This focuses on developing a comprehensive estimating work-bank linked to the pipeline, enabling more accurate cost estimates and providing the foundation for the design of new processes and procedures. Investment has been made in capability and cost intelligence software enabling a feedback mechanism between outturn cost on completed work into in progress projects and estimates.

Resourcing Benchmarks and Team Size

P&C continues to engage with colleagues across Capital on the ‘right sizing’ of project delivery teams to enable maximum efficiencies linking to the creation of more standardised delivery models and routes to market.

6.4 Engineering and Asset Strategy

6.4.1 Overview

The TfL Engineering and 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? Digitised asset data and standards 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.

6.4.2 In year progress

Blueprint developed for Digitising Asset Management (achieved)

After extensive market engagement with consultants, system providers and peer organisations, including Network Rail and National Highways, a blueprint has been developed. The next stage is to procure a Strategic Business Partner (SBP) for Digital Asset Management to set the strategic direction, support the change process and embed in the business. The intention is to have the SBP in place by autumn 2024. Pilot initiatives are anticipated to commence in late 2024 to demonstrate benefits of digitisation, e.g., improved data flows, improve data access and analytics, improved data integration.

Digitisation of Standards and Specifications (in progress)

This initiative seeks to modernise the management and use of Technical Standards across TfL’s Value Chain:

- Implementation of an E&AS Technical Standards Framework;
- Creation of a dedicated E&AS Technical Standards team;

- Development of a central information management system for all Technical Standards (for all modes);
- Development of comprehensive guidelines for the management and review of TfL Technical Standards;
- Standardisation of concessions approval system;
- Implementation of a digital Technical Standards authoring and review tool.

This work has been based on Standards improvement and digitisation approaches delivered recently by National Highways and Network Rail.

Procurement of Product Information Register (in progress)

TfL has licensed the digital platform successfully used by Network Rail for their “Digital Factory” initiative, initially with a view to adapting Network Rail’s Product Acceptance app for TfL’s needs. The new tool will support future integration with other digital systems. Network Rail have been extremely supportive during our evaluation of the system and we fully expect that there will be other opportunities for collaboration on future app development with Network Rail, for mutual benefit.

Development of Reference Designs approach (in progress)

Reference Designs are designs which are re-usable either in their ‘vanilla’ form or with relatively minor adaptation and 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.

Repeated use of design elements implicitly reduces the design timescale and creates economies of scale in manufacturing/implementation. We have been working to develop an app-based user interface with the hope of agreeing a common approach to management of Reference Designs with other UK transport clients.

Project Engineering Productivity (In progress)

Project Engineering capability is a key driver of productivity in projects and under this workstream will continue to improve project engineering capability by:

- Implementing the training strategy and rolling out to 50 per cent of community;
- Re-establishing the accreditation scheme;
- Continuing to maintain and improve the Engineering Handbook.

6.4.3 Look ahead

Programme Design Management Group

The Programme Design Management Group comprises key decision-makers on the programme with 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 to others. Without this over-arching design management, it is likely to give rise to sub-optimal decisions, integration gaps and optimisation opportunities to maximise value will be missed. This approach has been successfully trialled on the DLR Rolling Stock Replacement Programme and discussions have commenced to extend the approach to the Piccadilly Line Upgrade.

Design Management Process (end 2024)

Design management processes are not currently standardised across TfL. Pathway is used to identify the processes applied to individual projects. By developing a suite of standard processes, it will be possible to reduce the volume of effort spent developing the suite of plans needed for each individual project driving continuous improvement through a virtuous cycle of lessons learnt, updating the process, briefing/training and ongoing monitoring.

6.5 Access

6.5.1 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.

6.5.2 Rail Initiatives - in year progress

Access and Planning Operating Model Review (complete)

We conducted 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.

Rationalisation and development of our planning processes is an important first step to enable savings from the rail access workstream.

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.

In parallel to above activity we have continued to broaden our approach to rail closures this year; including identifying opportunities for weekday closures that extend the weekend access window traditionally used. In 2024 we plan to execute three separate weekday closures within the summer school holiday period.

6.5.3 Road initiatives – in year progress

Enhancement of the Playbook Tool (in progress)

Enhancement opportunities have been explored for the more effective use of the Playbook tool, with the focus being around project delivery coordination and planning. Some simple improvements to the accuracy of the data has enabled the effective coordination of multiple projects within the Asset Delivery Programmes, enabling more efficient planning and delivery, and minimising the road occupancy and related disruption to the general public and TfL services.

Third Party Request – bus infrastructure (completed)

At the start of 2023/24 it was identified that some borough-promoted works outside the TfL Road Network were not managed efficiently, leading to unrecovered staff costs and a damaged relationship between TfL and third party entities.

A process for third party promoted traffic signal infrastructure changes had been successfully managed by the Delivery Coordination team for several years, ensuring all TfL staff costs were recovered. This approach has been extended to bus infrastructure allowing for improved resource management due to increased visibility of pipeline works. Since its implementation in September 2023, £135,000 of TfL staff cost has been recovered. Additional efficiencies have also been realised by standardising/combining processes to avoid duplication of effort and the improved visibility of third party works pipeline allows better planning and coordination with TfL works and improved reputational relationships.

6.6 Project Management Community (Internal Resourcing)

6.6.1 Overview

Delivered as part of OTP, the Project Management Community (PMC) change programme seeks to create a more agile, consistent and transparent approach to the deployment and professional development of Project Management roles across the Capital Investment portfolio with a view to drive efficiencies and support TfL colleagues to achieve their work ambitions.

The programme has brought together all Project Management Professionals in March 2024 from Operations and Capital under the Chief Capital Officer within TfL. Detailed design work is underway to define ways of working, governance, processes and structures that enable TfL's Project Management cohort to work more flexibly and collaboratively across a range of projects that meets the needs of the business and the needs of the individual.

How will this make us more efficient? The changes will provide TfL colleagues with clearer career progression, clarity on roles and accountabilities, a more consistent approach to deployment and professional development through an increased understanding of staff skills and capabilities; all of which will help us deploy staff in a more agile way across the portfolio. This means colleagues will be able to work across programmes and move between tasks on a more agile basis, as we removed governance recruitment barriers that previously existed.

These changes are expected to deliver recurring capital savings of £4m each year from financial year 2026/27. Over five years, the Project Management Community aims to deliver £10.9m of cashable benefits through being more agile, lowering attrition and recruitment savings.

6.6.2 Initiatives – in year progress

Phase 1 of the programme stood up in March 2024 bringing together project management colleagues from Asset Performance Delivery and Rail and Sponsored Services. Rail and Sponsored Services transferred into Capital. Bringing together over 600 colleagues into one community and working in a matrixed organisation. This has already resulted in the agile movement of colleagues between projects without lengthy processes to transfer between programmes.

Phase 2 (Development and Implementation) is now underway and focused on the detailed design. Progress has included detailed design planning, as-is understanding and engagement with the business on to-be state. This includes looking at specific workstreams around:

- The Agile Model and Organisational Structure;
- Capability and Training;
- Job Descriptions and Role Profiles;
- Matrix Management;

- Benefits Realisation.

These will all enable the following efficiencies and benefits to be realised of an agile and efficient workforce, lower recruitment costs and reduced staff costs by using a better flex of permanent, consultant and non-permanent labour.

6.6.3 Look Ahead

For the remainder of 2024, we continue to develop the final state PMC design, which will involve cocreation and optioneering with the wider PMC, through to implementation and embedding.

7 Efficiencies targets in TfL's latest Budget

TfL's 2024/25 Budget includes Capital Efficiencies with a targeted range of £42m to £66m. This is a material step up to both the 2023/24 efficiency range and the 2023/24 efficiencies achieved. The 2024/25 Budget assumed that, following achievement of financial sustainability, and with a Government spending review expected during 2024/25, TfL would have improved longer term certainty of funding and hence did not adjust the CEP target to reflect a further years' uncertainty. It also reflected the progress of the OTP. There remains uncertainty over funding and economics and this Budget efficiencies target remains highly challenging.

TfL has also included an addition Capital "savings" target of £27m in the Budget for the first time.

As TfL does not have complete funding certainty beyond 2024/25, no targets are confirmed beyond this year.

Inflationary increases can mean delivery of fewer projects 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. Conversely any cost reductions relating to inflationary decreases do not meet the definition of efficiency.

8 Forward look

While TfL has exceeded its target range in each of 2021/22 and 2022/23, and achieved within the target range for 2023/24, in each case this was achieved almost entirely through a 'bottom up' approach on a project by project basis, rather than a top-down approach. These become more challenging to achieve as the proportion of our capital programme comprising committed schemes increases. Many of the improvements envisaged by our original CEP, such as those made by combining rail closures, are dependent on longer term (five+ years) funding certainty, due to the length of the planning horizon required.

Our most recent Business Plan assumes continued Government support for major capital enhancements and renewals from 2025/26 onwards which has yet to be confirmed.

The consequences of not receiving expected funding could result in inefficiencies greater than efficiencies 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, and without an increased level of funding to include more early stage projects, it becomes increasingly harder for TfL to achieve efficiencies.

Date: 3 October 2024

Item 14: TfL Lessons Learnt from Key External Reports

This paper will be considered in public

1 Summary

- 1.1 Further to a request from the Committee in September 2023, this paper provides a comprehensive summary of the Edinburgh Tram Inquiry (the Inquiry), distilling crucial lessons learnt and recommendations, and aligning these insights against current TfL processes or proposed strategies and plans for practical implementation and informed decision-making at TfL.
- 1.2 Since the initial request for this paper, the Department for Transport (DfT) and Infrastructure and Projects Authority published a report sharing the lessons learnt from the joint sponsorship and governance arrangements of the Crossrail project. In preparing this paper, it was considered appropriate to look at the nine key lessons cited in that Crossrail report and combine them with those identified from the Inquiry.

2 Recommendation

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

3 Background

- 3.1 The objective of the Edinburgh Tram project was to enhance public transportation in the city through the delivery of a tram network. The project encountered difficulties, resulting in a three-year delay and a final expenditure of £835.7m, surpassing the initial budget of £545m by 53 per cent. In response, the Inquiry was established in June 2014 to probe into issues related to project delivery, cost escalations, and scope reduction, with the goal of providing recommendations for future tram and light rail initiatives. The Inquiry report was then delivered to the Scottish Ministers in September 2023.
- 3.2 The Crossrail project was to create a vital new transport artery for London and the South-East, connecting east to west through the heart of central London, bringing 1.5 million people within 45 minutes of the capital city, rejuvenating town centres along the route, and directly connecting the UK's largest airport to two major financial districts.
- 3.3 The Crossrail project was developed in 2001, with royal assent being gained in 2008. In 2018, reports of significant cost and schedule pressures started to emerge and the project was completed with an overspend of over £4bn (an approximately 25 per cent overspend) and was three and a half years late

opening, despite intervention from the Joint Sponsor to change key staff, strengthen the board and re-baseline the project.

- 3.4 Section 4 below highlights relevant recommendations from across the 24 lessons identified by the Inquiry and the nine key lessons identified by the Crossrail Joint Sponsor report (which was produced with the direct involvement of TfL). These recommendations and lessons have been consolidated and grouped into themes to provide consistency and clarity across their potential application for TfL.
- 3.5 The recommendation and lesson application for TfL (as detailed in the right-hand column) is at different stages of implementation across the business; some are approved and theoretically in place but require embedding across projects, while others are further along their implementation journey. Achieving consistency in this application is something that TfL is continuing to work on and some specific actions to support this are noted in Section 5 below.

4 Lessons/Recommendations and Their Application at TfL

Lesson / Recommendation	TfL Application
Business Case and Scope	
<ul style="list-style-type: none"> • Inadequate standards and weak governance for creating business cases led to inaccuracies whose impact was realised too late. • Failure to account for optimism bias influence when updating risk assessments during business case creation and changes. • Lack of independent reviews during business case iterations leading to misalignment and greater opportunity for optimism bias and knowledge gaps. 	<p>TfL’s project management methodology (Pathway) provides clear, documented guidance for the creation and amendment of business cases which includes:</p> <ul style="list-style-type: none"> • Assurance for all iterations by Lifecycle stage to provide independent validation. • Re-evaluation of optimism bias guidance adherence at every iteration (and all future project stage gates).
Governance and Reporting	
<ul style="list-style-type: none"> • Optimism bias guidance not in line with current and relevant data. • No sense check of project performance expectations to ensure they are realistic and achievable. • Governance not set up to encourage collaboration and solution integration from onset creating isolated views. • Agreed delivery model needs to be formally reviewed at set intervals with any changes formally assessed and approved. • Risk identification and management needs to be an 	<p>Pathway provides the framework for programme /project governance which includes:</p> <ul style="list-style-type: none"> • Optimism bias guidance in line with DfT’s recommendation; this has been identified as the most up to date guidance with broadest spectrum for applicability. • Automatic notifications when DfT optimism bias guidance is updated so TfL can maintain alignment. • Assessment of TfL competency, capability, and capacity to deliver at initiation stage to validate the realism of the ask from the start. • Schedule risk analysis at each stage gate for programmes and major projects to assess probability of schedule achievement.

Lesson / Recommendation	TfL Application
<p>integral part of governance rather than a “nice to have”.</p>	<ul style="list-style-type: none"> • Requirement at initiation stage to engage with all key functions for collaborative solution, design, and delivery integration. • Review of delivery model at each stage gate and any changes managed through the TfL change control process. • Risk identification, review, and management is already mandated via Pathway at each stage gate. Moving forwards TfL is introducing a summary report specific to quality and risk assessments highlighting all stage gates awaiting sign off.
<p>Programme and Project Management</p>	
<ul style="list-style-type: none"> • Robust project controls and monitoring mechanisms needed to ensure the project is properly managed from initial scope, through changes, and into delivery. • Lack of well-defined roles and responsibilities led to unclear expectations with some responsibilities and ownership not being adequately met. • Essential to assure alignment of capabilities, influence, and project relevant knowledge in Sponsor, and non-executive Director roles. If required, individuals should rotate out of roles during different project phases. • Programme/project requirements must be clearly documented and agreed, and should be linked to outcomes, not just outputs. • Trade-offs between material scope, schedule, and cost arising as design and construction develop should be formally reviewed and approved by project sponsor as they occur. • Progress against requirements were not reviewed regularly to ensure they were still fit for purpose and on track. 	<p>Pathway sets out the framework and tools for managing TfL’s programmes/projects throughout their whole lifecycle. This is reinforced through:</p> <ul style="list-style-type: none"> • Mandatory stage gates at key programme /project intervals. Progress to the next stage cannot happen without prior stage gate sign off which is independent from project team. • RACI (Responsible, Accountable, Consulted, and Informed) matrix exists for in the Pathway manual for key roles and responsibilities, for the creation of key Pathway products, and from initiation stage a RACI relevant for the next stage must be produced by the initiator. • Project Controls Managers have a key responsibility in ensuring projects are kept in line and work is ongoing to ensure they have enough impact and influence to undertake this ask, especially at stage gates. • Programme/project requirements are clearly defined and reviewed at each stage gate; however, they are not currently mandated as linked to outcomes. This is being addressed in the Portfolio Management improvement roadmap. • All changes are managed via TfL’s change control process which mandates changes, and their impacts, are assessed holistically and requires endorsement from the professional heads of all impacted areas before they are accepted. For high value projects an additional level

Lesson / Recommendation	TfL Application
	<p>of approval is also required after endorsement.</p> <ul style="list-style-type: none"> To support TfL’s project controls and assurance functions, a handbook is being created initially focussing on Planning, Project Controls, and Risk.
Information Management	
<ul style="list-style-type: none"> Absence of proper record keeping for decision making and implementation processes meant a comprehensive audit trail was not available. Design and construction asset data needs to be in an integrated digital asset management system, not held in local systems. This will ensure all parties are working from the same reference point and information. 	<p>In addition to mandated Pathway product documentation, TfL ensures that we maintain a record of information and decisions using:</p> <ul style="list-style-type: none"> RAID (Risk, Assumptions, Issues, and Dependencies) logs for each programme /project lifecycle. Moving forwards TfL is looking to automate and centralise these logs for more controlled information management. Asset information is documented and managed through systems applicable to the project type including TfL Document Manager, Asite, Livelink, Assai, and SharePoint. All this asset information is handed over to Operations and Maintenance during handover and transferred to their relevant system. However, improving the swift full transfer of all information, when deficiencies are identified, needs improvement.
Design and Delivery	
<ul style="list-style-type: none"> Insufficient emphasis on design collaboration and coordination among key stakeholders leading to avoidable rework as design and delivery progressed. 	<p>The Pathway programme/project initiation stage guidance mandates that the initiator must engage with all key functions as early as possible to better understand the strategic context, allow for effective options analysis, and provide greater visibility from the onset.</p>
Commercial and Procurement	
<ul style="list-style-type: none"> Inadequate procurement strategy led to appointment of inexperienced contractors and sub-contractors. Failure to learn from past similar projects, in particular oversight in contractor selection, meant avoidable issues occurred unnecessarily. 	<p>TfL’s procurement and commercial strategy includes a “backwards facing” view for contractor pre-qualification criteria prior to tender stage. This establishes their track record and experience to date, along with their embedded processes and procedures to ensure adequate experience and qualifications across the supply chain.</p> <p>A key product for TfL’s Pathway stage gates is a Lessons Learnt document which includes lessons within the contractor, commercial, and procurement areas. These lessons are shared via:</p>

Lesson / Recommendation	TfL Application
	<ul style="list-style-type: none"> • Central Knowledge Portal for all programme/project lessons. • Assignment of key resource across similar projects to embed learnings. • Knowledge sharing sessions led by programme/project teams.
Risk Management	
<ul style="list-style-type: none"> • Ensure unbiased and impartial assessment and assurance of all project risks and interlinked risks are clearly marked and assessed as a whole, as well as individually. • Early warning mechanisms need to be in place for identified risks. • The quality of the risk and its evidence needs to be prevalent over just following a process. • Assure compliance to risk processes and requirements amongst all in programme/project team. • Insufficient risk management processes and governance. 	<p>Risk management is a key component of Pathway and its review and assessment is mandated at all programme/project stage gates. To fulfil the Pathway and programme/project obligations risk is managed using:</p> <ul style="list-style-type: none"> • Risk managers whose reporting line is in the PMO to eliminate potential project bias. • Key functions including sponsorship, commercial, delivery, and engineering/technical are actively involved in the identification and assessment of risks from their perspectives. • All top risks are scored individually and then verified by a Senior Risk Manager. • Interconnected risk analysis happens for programmes and large/complex projects. Moving forwards TfL is investigating how this can be applied to all projects. • Risk maturity assessments are validated by Senior Risk Managers to ensure accuracy. • Large and/or complex projects use periodic compliance reporting in addition to the mandatory stage gate risk assessments. • TfL is developing data/process check points to provide proactive identification and early warning of risks.
Behaviours and Culture	
<ul style="list-style-type: none"> • Ingrained cultural and behavioural challenges around financial oversight including a lack of mindfulness about public funds and insufficient focus on obtaining value for public expenditure. • Lack of collaborative approach throughout the project lifecycle. 	<p>Value for money and collaboration are at the forefront of TfL's aspirations for its programmes/projects. This is driven by:</p> <ul style="list-style-type: none"> • Value for money and affordability, and strategic fit and benefits are two core areas requiring assessment, review, and assurance from the initiation stage. • Stage gate assessment and assurance drives the importance of value for money and public expenditure accountability through the lifecycle. Guidance around this is constantly being reviewed and improved.

Lesson / Recommendation	TfL Application
	<ul style="list-style-type: none"> • Collaboration with all key functions is driven from the initiation stage in Pathway and is encouraged and supported by local governance during the programme/ project lifecycle.

5 Proposed Next Steps

5.1 TfL has a strong project management methodology in Pathway that is applicable for all our capital programmes and projects, with the exception of those managed through a customised agile methodology, and there is a dedicated team ensuring the Pathway methodology, and its related toolkit, remains relevant and up to date. However, while the Pathway methodology is strong, TfL acknowledges that further work is needed to ensure its consistent application to an appropriate level of depth. In order to support and drive the required behaviours for consistent application, listed below are specific improvement initiatives that are either already in progress, or are highlighted in preparation for the next financial year and we acknowledge the issues that the Independent Investment Programme Advisory Group have raised and are addressing its recommendations.

5.2 In Progress:

- (a) rolling out automated integrated reporting underpinned by good quality data for schedule risk analysis;
- (b) ensuring our Project Controls Managers have the right level of influence during the mandated Pathway stage gates;
- (c) ensuring correct membership at gate reviews with documentation provided in a timely manner in advance;
- (d) creation of a Project Controls and Assurance handbook covering planning, project controls, and risk to provide an integrated guide for our project teams; and
- (e) improvement of our Lessons Learnt process and systems to drive good quality data capture and easy user-friendly interrogation of existing lessons to embed improvements.

5.3 Planned:

- (a) expanding our interconnected risks analysis to all programmes and projects irrespective of size and complexity;
- (b) linking programme and project requirements to outcomes, not just outputs, as part of the Portfolio Management improvement roadmap;
- (c) automating our change control process to decrease turnaround time between change identification to approval;
- (d) production of a Quality and Risk Assessment summary report to highlight stage gates across all programmes and projects requiring sign off;
- (e) using data and process check points within our programmes/projects to provide early warnings of potential risks and enable proactive identification and response;
- (f) automation of RAID logs to drive greater consistency and control across all programmes and projects;

- (g) review how Technology and Data agile projects can be better aligned with Pathway, where appropriate; and
- (h) update the Pathway matrix to recommend products based on scale and complexity.

List of appendices to this report:

None

List of Background Papers:

None

Contact Officer: Michael Cooper, Director of PMO
Email: MichaelCooper1@tfl.gov.uk

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

Date: 3 October 2024

Item 15: Lessons Learnt from Major Programmes and Projects

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to update the Committee on how lessons learnt have been applied across major programmes and projects, which was an action from the meeting of the Committee held in May 2023. It provides some examples of where lessons learnt from previous programmes and projects have been applied in other programmes and projects.
- 1.2 The lessons discussed have been identified from: Piccadilly Line Upgrade (PLU), Crossrail, Bakerloo Line Extension (BLE), Barking Riverside Extension (BRE), Bank Station Upgrade, Four Lines Modernisation Programme (4LM), Northern Line Extension (NLE), East London Line Enhancements (ELL), Step-Free Access (SFA), Ultra Low Emission Zone (ULEZ) 2021 Expansion and DLR Rolling Stock Replacement Programme (DLR).
- 1.3 The lessons have been embedded by the Bakerloo Line Upgrade (BLU), BLE, Elephant & Castle Station Capacity Upgrade, Capital Delivery LU Enhancements, ELL, PLU, SFA, Surrey Quays Station Upgrade, ULEZ 2023 Expansion and others. In addition to the lessons learnt and embedded directly into programmes, this paper also highlights how some lessons are being implemented across TfL through more systematic improvements to TfL's operating model.

2 Recommendation

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

3 Background

- 3.1 Providing visibility of how TfL incorporates lessons learnt from major projects emphasises the importance of documenting these lessons. Documenting lessons is mandated for successful progression through programme and project gateways in Pathway, TfL's project management methodology. Lessons documented are loaded into the central Pathway knowledge portal and report repository, the use of these lessons is also captured as part of the gate review process.
- 3.2 This paper spotlights key lessons highlighting: the lesson learnt, which programme / project it was learnt on; and a programme or project that has, or will, benefit from this lesson by incorporating it into their programme or project. The lessons in Section 4 below have been grouped by theme for ease of reading and the projects listed within the lessons below are only some examples of where the

lessons have, or will be, applied. Many lessons are applicable to multiple projects, and learnings from recurring lessons are systematised over time.

- 3.3 There are further projects where the lessons have been embedded, for instance ensuring the business case conforms with Department for Transport (DfT) and HM Treasury guidance applies to a host of projects, such as BLU, Major Road Network schemes, Leyton and Colindale Levelling Up funding, and East London Line Housing Infrastructure Fund funding.
- 3.4 This paper also highlights key initiatives that are embedding lessons more systematically through changes to TfL's operating model. This approach aims to enhance the overall learning, embedding of lessons learnt, and the effectiveness and efficient delivery of our major projects within TfL.

4 Specific Lessons Implemented - Grouped by Theme

4.1 Theme 1: Enhanced delivery model and early engagement

Lesson Recommendation	Programme / Project Identified In	Example Programme / Project Applicable To
Use third party funding to reduce costs when funding major components of a scheme, through mixed funding mechanisms.	Crossrail	Elephant & Castle Station Capacity Upgrade
Structure the business case to conform to latest guidance from DfT and HM Treasury. This will ensure alignment of project financials and strategic aspects with current standard and best practice recommendations.	Crossrail	BLE
When third parties are involved, ensure a coordinated delivery and procurement approach from the start to provide adequate focus on the clarity of design and delivery strategies with third parties to reach joint schedule acceptance.	Crossrail	BLU
Implement a standardised yet adaptable Project Delivery Model across the Capital Delivery LU Enhancements to clarify TfL's role as Client and right-size delivery activities. This approach incentivises better performance through mature partnerships with the supply chain and ensures contractor involvement in concept design for better buildability. To guide early decision-making, avoid cost increases, and keep the Estimated Final Cost affordable.	Capital Delivery LU Enhancements and multiple programmes (e.g. BRE, NLE)	Capital Delivery LU Enhancements (e.g. Whitechapel temporary ticket hall, Stratford, Colindale, Leyton and SFA Programme and West London Depot

Lesson Recommendation	Programme / Project Identified In	Example Programme / Project Applicable To
		Development Programme (Development Programme)
Engage early with Network Rail to facilitate surveys during feasibility. This will help identify existing infrastructure issues early and provide a more accurate estimation of required works. Early engagement proactively addresses potential maintenance problems and reduces uncertainty in planning.	BRE	BLE
Adopt an 'Integrated Delivery' approach incorporating Early Contractor Involvement (ECI) to improve delivery performance. This model ensures contractors take full ownership of the design, including logistics and access planning, to offer more buildable schemes. Contracts are awarded via multi-stage design and build with open-book pricing and competitive tendering, enhancing flexibility and collaboration. This new model should also recognise the need for more detailed survey information, a common lesson found within the Lesson Learnt database.	Capital Delivery LU Enhancements and SFA Programme	Capital Delivery LU Enhancements and SFA Programme, and across TfL Capital
For Blockade Closures, assess options early but do not 'lock in' the method at planning stage - leave options open to develop the most effective method during planning and execution stages, preferably with ECI.	NLE	Surrey Quays Station Upgrade
Use incentives in engineering and construction contracts to encourage delivery to timescale, budget, and original scope. Foster a culture of collaboration, alongside good contract management.	Crossrail	BLU
Integrate engineering and environmental work packages into a single tender during early-stage feasibility to avoid potential disconnects between interconnected areas. This streamlines communication, saves time and cost, and allocates project management responsibility to suppliers ensuring consistency and efficiency across all project components.	BRE	BLE

Lesson Recommendation	Programme / Project Identified In	Example Programme / Project Applicable To
ECI should be used to achieve greater certainty of cost and schedule outturn. Ensure that the contractor takes full ownership of the design, including accommodating logistics and access planning constraints during detailed design, to encourage more 'buildable' schemes.	4LM	PLU
There are benefits to framing the projects as a system rather than, for example, a station build. This improves focus on complex systems integration through the lifecycle.	Jubilee Line Extension, NLE	BLE, BLU, PLU

4.2 Theme 2: Improvements in co-ordinating delivery

Lesson Recommendation	Programme / Project Identified In	Example Programme / Project Applicable To
Integration between contractors Possession Planning - Integrated plan across all parties worked well.	NLE	ELL and across London Overground
Use an overarching Geographic Information System platform to disseminate safeguarding information consistently throughout organisation to ensure accessibility and enable plotting of all relevant data on a unified platform. This streamlines communication and decision-making process.	Crossrail	BLE
Understand and apply Network Rail specific asset policies per project to prevent incorrect handling of assets and potential time and cost overruns consequently. How an asset has been handled in a prior location or route does not reflect across all routes.	4LM	BLU
Allow for more flexibility in receiving and releasing units and maintain open communications between project and depots during snagging stage to avoid fleet shortage issues due to units being returned before snagging completed. This will help avoid misalignment and resolve issues quickly if they do arise.	BLU	LED
Acoustic sheds over both access shafts provided huge benefits including enabling 24 hour working, reducing dust and noise emissions, and minimising disturbances to surrounding local residents.	Bond Street Station Upgrade, NLE	DLR Thamesmead extension

Lesson Recommendation	Programme / Project Identified In	Example Programme / Project Applicable To
Though persuasion or contract mechanisms, ensure your supply chain mobilises sufficiently and builds capability for the expected volume and complexity of work required.	ULEZ 2021 Expansion	ULEZ 2023 Expansion
Deployment of tools and techniques to integrate and improve schedule confidence and achievement of critical milestones, particularly bringing into use and handover. T-minus Sprint Planning and focussed risk assessments of outstanding scope provide clarity for all stakeholders and enable prioritisation and agility in delivery.	Crossrail	Capital Delivery LU Enhancements

4.3 Theme 3: Resourcing improvements and effective deployment

Lesson Recommendation	Programme / Project Identified In	Example Programme / Project Applicable To
Design teams to provide adequate resource to sufficiently define challenges and risks in design delivery up front.	Crossrail	BLU
Seek opportunities to 'roll over' existing project teams onto similar projects to benefit from tacit knowledge held within the team. This can greatly improve the effectiveness of the team and shorten the project mobilisation timescales.	ULEZ 2021 Expansion	ULEZ 2023 Expansion
Identify redeployment opportunities well in advance of project closure. Try to reallocate project staff to similar projects upon closure, so they can bring their knowledge sharing and learnings into similar environments. Encourage early involvement and early engagement with new projects.	BRE, 4LM	ELL, PLU, DLR
Where reallocation of staff to similar projects is not practical, engage in peer reviews between new project teams and similar previous teams, with a focus on peer reviews before bidders are engaged.	BRE, DLR	Surrey Quays Station Upgrade
Co-ordinating with other projects that are using the same supplier though a 'TfL joint supplier escalation group', or a similar mechanism, can ensure projects identify and tackle common concerns effectively and avoid projects being played off against one another.	Healthy Streets Programme	Safe and Healthy Streets Programme

5 Other Improvements Underway

- 5.1 Learning lessons from one programme to another is beneficial, however a lasting improvement can also be achieved by making systematic organisational improvements to delivery models, informed by lessons learnt across major projects and programmes. Notable improvements informed by lessons learnt on major programmes are the Our TfL Programme (OTP), Benefits Management, Project Delivery Model, and Knowledge Management improvement initiatives.
- 5.2 The OTP is a vast programme of improvements to the way we work. Within Capital the recent improvements related to embedding lessons learnt are:
- (a) a Project Management Community (PMC) has been set up to centralise the project management capability, increase resource allocation agility, and share knowledge and case studies more effectively across TfL. The PMC Asset Hubs will provide a more targeted grouping within the PMC for extracting and sharing the lessons that are most relevant to that grouping;
 - (b) the project characterisation matrix process has been updated, to assist in selecting the appropriate depth of deliverables required, and to improve the allocation of projects to the correct business area; and
 - (c) in response to a common theme in lessons, we aim to better validate the absolute necessity of requirements, when defining the scope more for projects that require new technology to be developed, therefore limiting novelty to a 'minimal viable product' approach where practical. The best way to systematise this approach is still under discussion.
- 5.3 In Benefits Management, the monitoring and evaluation approach on higher value projects is under review. Improving the tracking and reporting of progress against a framework of common Strategic Outcomes and background trends. Then tailoring programme and project specific monitoring and evaluation activities to devise ways of gaining the most useful insights. When benefits observations of particular importance are made, these will be reported through pan-Programme, pan 'Value-Chain' forums, to ensure any actions are noted, and learnings are embedded in future decisions.
- 5.4 The TfL 'Project Delivery Model' OTP initiative responds to a range of lessons learnt, including those gained from the adoption of an 'integrated delivery' approach on the SFA programme, to create a standardised yet flexible delivery model for Capital Delivery Enhancements. Currently we can take an inconsistent approach to our Delivery Model, which limits collaboration with the supply chain and can lead to significant costly changes later in the project lifecycle. The new TfL Project Delivery Model would make use of a small number of 'Delivery Model Runways' to recognise the varied nature of the portfolio, with the runway used setting out a decision-making envelop and process to ensure that intelligent and informed decisions are being made on projects regarding the role of TfL as client, commercial approach, and other key factors. The adoption of this new Delivery Model will require several key operating model changes that will act as another vehicle to embed a range of lessons learnt.

- 5.5 The next generation framework workstream seeks to build on the successes of the Surface Transport Infrastructure Construction framework and commercial model, to create a Rail Infrastructure Construction framework aimed at medium-sized capital projects, circa £1m. This framework, informed by lessons in Surface Highways and SFA, would reduce the need for mini competition and increase the predictability of work for the supply chain, in turn reducing the tendering risk overhead. In addition, a less transactional model will provide TfL a greater opportunity to and incentivise 'Core Contractor' quality, compliance and good behaviours demonstrated by suppliers, through the mechanism of awarding a higher percentage of the framework to those that perform well.

6 Next Steps

- 6.1 The above specific and systematic examples demonstrate how we are identifying improvements to embed across our programmes and projects. This is backed up by people sharing their knowledge across the various projects and teams they work with in TfL either verbally, with reports, or during activity planning and execution. However, we recognise there is always room for improvement and are looking at how we can ensure consistency of lesson recording and knowledge sharing across all Project Management Office (PMO) programme and projects.
- 6.2 As such, the PMO's Value and Continuous Improvement (VCI) team is currently redesigning the process for capturing lessons learnt to drive consistent high quality across projects, along with visibility across the whole of PMO and Capital. To achieve this, the team have proposed an evolve of the existing Knowledge Portal system that should be currently used to capture lessons and provide a central repository with visibility across PMO. This evolution will bring enhanced user interface providing the ability for projects and users to easily and efficiently access any lessons that may be relevant to their project allowing them to set up their projects with the greatest chance of success from the start.
- 6.3 In addition to lessons capturing improvements, the VCI team is making targeted improvements to the Lesson Learnt systems available to Project Managers. In time, this will move the knowledge management focus from assisting with the collection of lessons, towards a focus on identifying common lesson trends, providing proactive insights to programmes, and identifying specific improvement actions to business processes. Options for these improvements include developments in data analysis, new technology for language processing and making the knowledge portal more accessible.
- 6.4 Included in the proposed changes to the lessons learnt process and supporting system is a mechanism for monitoring recommendations arising from lessons to ensure they are assessed, measured, prioritised, and implemented across the business. This is an essential behaviour change to prevent TfL from repeating preventable mistakes and to demonstrate the measurable benefit of learning lessons.

List of appendices to this report:

None

List of Background Papers:

None

Contact Officer: Michael Cooper, Director of Programme Management Office
Email: MichaelCooper1@tfl.gov.uk

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

Programmes and Investment Committee

Date: 3 October 2024

Item 16: Forthcoming Key Procurement Activities

This paper will be considered in public

1 Summary

- 1.1 This paper sets out a summary of the major new procurements or contract extensions planned over the next two years and those for which approval will be required from the Committee by way of Chair's Action over the next six months. It also highlights significant forthcoming procurements that require approval at officer level during that period.
- 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 financial and 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 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 There is a recognised need to provide this Committee and other decision makers in TfL with a forward look on the pipeline of major procurements and those requiring decisions.
- 3.2 The Procurement and Commercial (P&C) function within TfL has worked to improve its forward planning, for example by consolidating multiple sources of data regarding the plans for contract renewals and new procurements. This has enabled P&C to establish a pipeline of activities over the next two years.
- 3.3 P&C's ability to plan the necessary governance and approval timescales, in conjunction with meetings of relevant Committees where appropriate, is improving and will continue to improve. This will not entirely remove the possible need for out of cycle approvals to be sought by way of Chair's Action, either because of the conclusion of a procurement which falls naturally in timing between meetings, or because of an urgent requirement. The data sets are accurate as of 7 August 2024.

3.4 This paper sets out the approvals anticipated to be required from the Committee over the next six months and highlights significant forthcoming procurements that require approval at officer level during that period.

4 Two year look ahead

4.1 The two year look ahead is summarised below, including only those projects with an estimated value of £1m or over. The pipeline for strategy approvals and contract awards covers 310 contracts with an estimated total value of £20bn, and equivalent annual spend of £5bn, when prorated by the length of the contracts. This is broken down as follows:

P&C Division/Team	No	Estimated Value (£m)	Equivalent Annual Spend (£m)
Capital	97	10,584	3,351
Technology	44	2,089	312
Capital Systems	13	546	160
Places for London	10	534	385
Capital Infrastructure	30	7,414	2,493
Operations	213	9,555	1,663
Fleet	57	364	107
Facilities Management	12	2,557	435
Indirects (support goods and services)	19	2,031	463
Operations Infrastructure	63	2,261	281
Partnerships	17	104	20
Rail and Sponsored Services	20	676	121
Track	25	1,560	231
Grand Total	310	20,140	5,014

5 Planned Procurement Activity Ahead of the Next Meeting

5.1 There are two business units within the P&C function, and the key forthcoming procurement activities for both are summarised below. Further details of these procurement activities are provided within the related paper on Part 2 of the agenda.

5.2 In Operations and Professional Services, most decisions for contracts related to operational expenditure are routed through the Finance Committee rather than to this Committee although all Members will receive the paper.

5.3 In Capital and Technology, we are currently forecasting that two contract awards will require Committee approval by way of Chair's Action in the next six months.

List of appendices to this report:

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

List of background papers:

None

Contact Officer: Luke Jarvis, Interim Director of Procurement & Commercial,
Capital

Email: LukeJarvis@tfl.gov.uk

Date: 3 October 2024

Item 17: Members' Suggestions for Future Discussion Items

This paper will be considered in public

1 Summary

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

2 Recommendation

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

3 Forward Plan Development

- 3.1 The Board and its Committees and Panels have forward plans. The content of the plan arises from a number of sources:
- (a) standing items for each meeting: minutes; matters arising and actions list; and any regular quarterly 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; and
 - (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

List of Background Papers:

None

Contact Officer: Andrea Clarke, General Counsel
Email: AndreaClarke@tfl.gov.uk

Programmes and Investment Committee Forward Plan 2024/25

Appendix 1

Membership: Peter Strachan (Chair), Arthur Kay, (Vice Chair), Seb Dance, Deborah Harris-Ugbomah, Mark Phillips, Omid Shiraji and Sara Turnbull

Government Special Observer: David Coles

Abbreviations: CCO (Chief Capital Officer), CCSO (Chief Customer and Strategy Officer), CFO (Chief Finance Officer), COO (Chief Operating Officer), D-IP (Director Investment Planning), CTO (Chief Technology Officer) D-EL (Director Elizabeth line)

Standing Items		
Use of Delegated Authority	General Counsel	Standing item
Forthcoming Key Procurement Activities	Chief Finance Officer	Standing item
Quarterly Investment Programme Report	CCO and D-IP	Standing item
Independent Investment Programme Advisory Group Quarterly Report	General Counsel	Standing item
TfL Project Assurance Update	General Counsel	Standing item
Regular programme annual reviews		

11 December 2024		
DLR Rolling Stock Replacement Programme	CCO and D-IDP	Annual
Safe and Healthy Streets Programme	D-IP	Annual
Enterprise Risk Update - Delivery of TfL Key Investment Programmes and Projects (ER08)	CCO	Annual
London Underground Lifts and Escalator Contracts	D-IP	Update
Network Development and Third-Party Pipeline Programme	D-IP and D-SP	Update
Bakerloo line Upgrade Stage 1	CCO and D-IP	Annual
Pontoon Dock	D-IP	Update

5 March 2025		
Environment Programme – Air Quality and Environment	D-IP	Annual
Technology Programme 2025/26 and 2026/27	D-IP and CTO	Annual

Regular Items:

- Environment Programme – Air Quality and Environment (D-IP) (March)
- Technology Programme (D-IP and CTO) (March)
- London Underground Four Lines Modernisation (4LM) Annual Update (CCO) (June)
- Streets, Bus and Rail and Sponsored Services Renewals Programme (D-IP) (June)
- Technology Programme (D-IP) (June)
- Rail and Station Enhancements Programme (D-IP) (June)
- Capital Efficiencies Report (CCO) (June)
- Silvertown Tunnel Annual Review (CCO) (September)
- Piccadilly Line Upgrade (CCO) (September)
- London Underground Renewals (D-IP) (September)
- DLR Rolling Stock Replacement Programme (CCO and D-IP) (December)
- Safe and Healthy Streets Programme (D-IP) (December)
- Enterprise Risk Update – Delivery of TfL Key Investment Programmes and Projects (ER08) (CCO) (December)
- Bakerloo line Upgrade Stage 1 (CCO and D-IP) (December)
- Lessons Learned from Recently Completed Projects (CCO)

Items to be scheduled:

- Elephant & Castle