

Agenda

Meeting: Programmes and Investment Committee

Date: Friday 16 October 2020

Time: 10.00am

Place: Microsoft Teams

Members

Prof Greg Clark CBE (Chair)
Dr Nelson Ogunshakin OBE (Vice-Chair)
Heidi Alexander
Mark Phillips

Dr Nina Skorupska CBE
Dr Lynn Sloman
Ben Story

Government Special Representative

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

To maintain social distancing in the current circumstances, the meeting will be held by videoconference or teleconference. The meeting remains open to the public, except for where exempt information is being discussed as noted on the agenda, as it will be webcast live on the [TfL YouTube channel](#).

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Further Information

If you have questions, would like further information about the meeting or require special facilities please contact: Jamie Mordue, Senior Committee Officer; Tel: 020 7983 5537; email: v_JamieMordue@tfl.gov.uk.

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

Howard Carter, General Counsel
Thursday 8 October 2020

**Agenda
Programmes and Investment Committee
Friday 16 October 2020**

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 20 July 2020 (Pages 1 - 12)

General Counsel

The Committee is asked to approve the minutes of the meeting of the Committee held on 20 July 2020 and authorise the Chair to sign them.

4 Matters Arising and Actions List (Pages 13 - 18)

General Counsel

The Committee is asked to note the updated actions list.

5 Use of Delegated Authority (Pages 19 - 24)

General Counsel

The Committee is asked to note the paper.

6 Investment Programme Report - Quarterly report (Pages 25 - 68)

Director Major Projects and Managing Directors London Underground and TfL Engineering and Surface Transport

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

7 Independent Investment Programme Advisory Group - Quarterly Report (Pages 69 - 80)

General Counsel

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

8 TfL Project Assurance Update (Pages 81 - 86)

General Counsel

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

9 London Underground Technology Programme (Pages 87 - 100)

Managing Director London Underground and TfL Engineering

The Committee is asked to note the paper and approve authority.

10 Surface Technology Programme 2020/21 (Pages 101 - 112)

Managing Director Surface Transport

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

11 DLR Rolling Stock Replacement - Rolling Stock Replacement Programme and Housing Infrastructure Funding (Pages 113 - 122)

Director Major Projects

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

12 London Underground Major Stations Programme (Pages 123 - 132)

Director Major Projects

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

13 HS2 Update (Pages 133 - 140)

Director Major Projects

The Committee is asked to note the paper and authorise TfL officers to agree and execute documents as set out in the paper.

14 Northern Line Extension Update (Pages 141 - 148)

Director Major Projects

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

15 Members' Suggestions for Future Discussion Items (Pages 149 - 154)

General Counsel

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

16 Any Other Business the Chair Considers Urgent

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

17 Date of Next Meeting

Friday 11 December 2020 at 10.15am

18 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.

19 Investment Programme Report - Quarterly report - To Follow

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

20 Independent Investment Programme Advisory Group - Quarterly Report (Pages 155 - 162)

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

21 TfL Project Assurance Update (Pages 163 - 164)

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

22 Surface Technology Programme 2020/21 (Pages 165 - 170)

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

23 DLR Rolling Stock Replacement - Rolling Stock Replacement Programme and Housing Infrastructure Funding (Pages 171 - 176)

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

24 London Underground Major Stations Programme (Pages 177 - 182)

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

25 Northern Line Extension Update (Pages 183 - 188)

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

Agenda Item 3

Transport for London

Minutes of the Programmes and Investment Committee

Teams Virtual Meeting 9.00am, Monday 20 July 2020

Members

Professor Greg Clark CBE (Chair)
Dr Nelson Ogunshakin OBE (Vice-Chair)
Heidi Alexander
Mark Phillips
Dr Nina Skorupska CBE
Dr Lynn Sloman

Board Members in Attendance

Cllr Julian Bell

Executive Committee

Andy Byford	Commissioner
Howard Carter	General Counsel
Michèle Dix	Managing Director, Crossrail 2 (for minute 32/07/20)
Stuart Harvey	Director of Major Projects
Simon Kilonback	Chief Finance Officer

Staff

Tanya Coff	Divisional Finance Director, London Underground
Patrick Doig	Divisional Finance Director, Surface Transport
Nigel Hardy	Head of Programme Sponsorship Investment Delivery Planning, Surface Transport
Lorraine Humphrey	Head of TfL Project Assurance
Tony King	Group Finance Director and Statutory Chief Finance Officer
Adie Shepherd	Head of Public Transport Sponsorship, Surface Transport (for minute 33/07/20)
Howard Smith	Chief Operating Officer - Elizabeth Line (for minutes 27/07/20 and 28//07/20)
Clive Walker	Director of Risk and Assurance
Shamus Kenny	Head of Secretariat
Jamie Mordue	Senior Committee Officer, Secretariat

Crossrail Limited

Mark Wild	CEO, Crossrail Limited (for minutes 27/07/20 and 28//07/20)
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Independent Investment Programme Advisory Group (IIPAG) Attendance

Alison Munro	Chair, IIPAG
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22/07/20 Apologies for Absence and Chair's Announcements

The Chair welcomed the Commissioner to his first meeting of the Programmes and Investment Committee. Andy Byford was honoured to be appointed as Commissioner and thanked his predecessor, Mike Brown, for his work. His top two priorities as the Commissioner were to secure long-term sustainable funding for TfL and to deliver the Elizabeth line.

Apologies for absence were received from Ron Kalifa OBE, Dr Alice Maynard CBE and Ben Story. Andy Lord, Managing Director London Underground and TfL Engineering, Gareth Powell, Managing Director Surface Transport, and Alexandra Batey, Director, Investment Delivery Planning, were also unable to attend the meeting.

The Chair informed the Committee that Ron Kalifa OBE and Dr Alice Maynard CBE had requested to step down as Members of the Committee, due to other work commitments. This would be confirmed at the meeting of the Board on 29 July 2020.

As TfL did not benefit from the temporary changes to local authority meetings included in the Coronavirus Act 2020 (the Act), this was not a formal meeting of the Committee but was run as if the Act applied, as far as possible. The papers had been published in advance and the public discussion was recorded and released on TfL's YouTube channel. Where decisions were required, these were taken by the Chair, following consultation with Members, with a note of the discussion and decisions published on tfl.gov.uk.

To reflect TfL's focus on safety, the Chair invited Members to raise any safety issues in relation to items on the agenda or within the remit of the Committee at the start of the item or under Matters Arising. Any other safety issues could be discussed with the General Counsel or an appropriate member of the Executive Committee after the meeting.

23/07/20 Declarations of Interests

Members confirmed that their declarations of interests, as published on tfl.gov.uk, were up to date.

Howard Carter informed the Committee that Dr Nelson Ogunshakin OBE, as a TfL nominated non-executive director of the Crossrail Limited Board, had declared an interest in relation to items 7 and 20 – Crossrail Limited Board Appointments. Dr Ogunshakin and Anne McMeel had received the paper on Part 2 of the agenda as it did not contain information they were not previously aware of. If the Committee was minded to discuss the item on Part 2 of the agenda, Dr Ogunshakin would leave the meeting for that discussion.

24/07/20 Minutes of the Meeting of the Committee held on 5 March 2020

The Chair, in consultation with the Committee, approved the signing of the minutes of the meeting held on 5 March 2020 as a correct record.

25/07/20 Matters Arising and Actions List

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

The Committee noted the actions list.

26/07/20 Use of Delegated Authority

Howard Carter introduced the paper, which provided an update on the use of delegated authority by the Committee, through the use of 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.

Since the last meeting of the Committee, there had been two decisions taken by Chair's Action, relating to: Crossrail – Bond Street station (which included the use of authority delegated by the Board); and the East London Line – Housing Infrastructure Fund.

The Chief Finance Officer had approved Procurement Authority for the Jubilee line mid-life refurbishment and the Power Supervisory Control and Data Acquisition (SCADA) life extension project.

There had been no Mayoral Directions to TfL within the Committee's remit.

The Committee noted the paper.

27/07/20 Elizabeth Line Operational Readiness and Crossrail Update

Howard Smith introduced the paper and the supplemental information on Part 2 of the agenda. The paper provided an update on the status of the Crossrail project, including the readiness of the Infrastructure Managers (IM) for the operations and maintenance of the railway after handover from the Crossrail project. It also contained the periodic Project Representative (P-Rep) reports and management responses. Mark Wild was also present for this item.

Work had reached a Safe Stop but had now restarted at all sites. During the Safe Stop period, it was possible to control the infrastructure with minimum staff, based off site. Crossrail Limited (CRL) had adopted Covid-19 principles, including the implementation of temperature checks and maintaining a two-metre distance between staff, where possible. This allowed between 1,500 and 1,800 staff to be on CRL sites, compared to 4,000 pre Covid-19. Despite fewer staff on site, productivity had increased. Three thousand staff were working from home and there were no plans to remobilise at office bases in the immediate future; CRL worked to ensure staff maintained a proper work/life balance.

Mark Wild advised that health and safety remained a key priority.

Necessary assurance activity and documentation was been completed as efficiently as possible.. It was important to continue to attract key people with the necessary skills and experience in delivering projects of a similar magnitude. The confluence of simultaneously standing up the world's largest digital railway and standing up a new IM, with its own safety systems, made the assurance process complicated.

CRL had worked with its contractors to gradually increase the number of staff on sites to complete the outstanding construction work. A blockade would be put in place in August 2020 to complete the work in the tunnels. It was possible that a future blockade would be required to address any issues identified in the August 2020 blockade.

Six of the 10 shafts and portals had been handed over from CRL to TfL. The remaining shafts and portals were expected to be handed over by the end of August 2020. All Engineering Safety Justifications for the routeway had been submitted by the Tier 1 contractors for review by CRL.

All central section stations, except Bond Street, were certified as ready to support Trial Running. Due to the volume of work remaining and the number of people required on site, the remaining work at Bond Street for Trial Running would need to be re-planned. As a result, CRL and Costain Skanska Joint Venture agreed to conclude the existing contract on 24 June 2020. CRL would oversee completion of the remaining works.

TfL Rail was now operating 100 per cent of its pre Covid-19 service. The Readiness Group continued to meet, which focussed on moving infrastructure into the operational environment.

Nine car trains to Heathrow were expected to be operational in the coming months. Network Rail (NR) had restarted work on delivery of the stations on the western branch. NR was undertaking a nationwide assessment to confirm the impact of Covid-19 on its works. NR continued to connect its railway at both ends of the central tunnel section, which was largely complete, and would also upgrade the power supply in the east. The progress of stations had been delayed by around three months but NR had recommenced work.

The Commissioner was encouraged by the work done to date and reemphasised his determination to help the Elizabeth line open as soon as possible. Where necessary he would safely challenge ways of working and encourage pragmatism.

Members asked that responses to the P-Rep reports be as clear as possible and that technical terms are explained.

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

28/07/20 Crossrail Limited Board Appointments

Howard Carter introduced the paper and the supplementary information on Part 2 of the agenda, which sought approval for the extension of three existing appointments to the Board of Crossrail Limited (CRL). The TfL Board had delegated authority to the Committee to take decisions on matters reserved to the Board in relation to the Crossrail project, including the appointment of non-executive directors.

The Chair of the Committee, in consultation with Members, noted the paper and the supplementary information on Part 2 of the agenda and, under the authority delegated by the Board on 27 March 2019:

- 1 extended the appointments of the following non-executive directors on the Board of Crossrail Limited:**
 - (i) Steve Livingstone – from 17 July 2020 up to 16 July 2021;**
 - (ii) Anne McMeel (TfL Sponsor nominee) – from 2 September 2020 up to 5 September 2021; and**
 - (iii) Dr Nelson Ogunshakin OBE (TfL Sponsor nominee) – from 2 September 2020 up to 5 September 2021; and**
- 2 agreed that all extensions include the option to terminate the appointment with two-months' notice.**

29/07/20 Management of the TfL Investment Programme during the Covid-19 Pandemic

Stuart Harvey introduced the paper, which set out the practical impact of the Covid-19 pandemic on TfL's Investment Programme and the actions that had been taken.

On 24 March 2020 a pan-TfL Safe Stop was put in place across all projects. Work on the project sites was stopped as many sites were space constrained and in order to reduce the use of public transport. A review was undertaken to assess sites that needed to continue work for safety or reliability reasons. On 29 May 2020, work on projects restarted, having used a comprehensive peer review process to ensure that safety on site was maintained. A virtual pan-London safety stand-up was held to reinforce the safety basics, in addition to responding to Covid-19.

TfL had worked closely with the supply chain to understand what it was doing to implement best practice and how best to safely restart work. A pan-London interface group was set up to coordinate this across London.

Planning had been done on how best to respond to a potential second wave of Covid-19 or a prolonged period of social distancing measures. As the correct processes had been determined, it was not currently thought that another pan-London Safe Stop would be necessary. TfL was adhering to two-metre social distancing as a matter of course. Where this was not practically possible, working permits were required and other measures, such as screens, were introduced. It was possible that there could be fewer people on site and an increase in levels of off site construction.

TfL had collaborated well with suppliers to ensure that it was able to procure sufficient resource. Over the long term, greater thought would be given to graduates and apprentices to secure the necessary resource.

In discussions with the Government, TfL had made clear that it should be funded to enable it to implement Public Procurement Notice 02/20, but the negotiated funding package did not allow for this. This added more difficulty in managing the situation in TfL's capital delivery area, which had the same suppliers as other public bodies such as Crossrail and Network Rail. TfL would reiterate to Government, in negotiations for funding for the second half of the year, that TfL was a key part of the public sector and needed to be funded sufficiently to support the supply chain.

The Committee noted the paper.

30/07/20 Independent Investment Programme Advisory Group Quarterly Report

Lorraine Humphrey introduced the paper and the supplementary information on Part 2 of the agenda. The paper provided an update on the work undertaken by the Independent Investment Programme Advisory Group (IIPAG) since the last meeting of the Committee on 5 March 2020.

The number of reviews that IIPAG had been able to complete had decreased, owing to Covid-19, but had now begun to increase. Future reports would likely focus on the decisions TfL had taken in response to Covid-19 and budgetary situations.

Alison Munro told the Committee that IIPAG had used the period to finalise work on: Value for Money: Business Cases and Prioritisation; TfL Standards; Assurance of Commercial Development; and Commercial Transformation.

There were no new cross-cutting issues raised in the reports, other than to emphasise that TfL should maintain the high quality of benchmarking work that had been completed.

IIPAG planned to conduct more work on the progress against cross-cutting recommendations, where there was work still to be done, for example on tracking against original schedules. It was recognised that not all recommendations could be implemented instantly.

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

31/07/20 TfL Project Assurance Update

Lorraine Humphrey introduced the paper and the supplementary information on Part 2 of the agenda, which provided an update on project assurance work undertaken between 2 February and 26 June 2020.

A limited number of reviews had been completed between 1 April and 26 June 2020, due to the impacts of Covid-19, including the corresponding Safe Stop of projects across TfL and the furloughing of TfL staff.

Six reviews were undertaken (one programme and five project assurance reviews) which gave rise to 91 recommendations, of which none were critical issues. As staff returned from furlough, there would be a renewed focus on addressing the number of overdue actions and programme reviews.

Project Assurance was working with Major Projects and the Independent Investment Advisory Group (IIPAG) to address the one critical issue outstanding in relation to Four Lines Modernisation programme.

IIPAG was looking at a methodology to establish value for money for programmes that did not typically fit within the usual business case methodology, for example walking and cycling schemes. A report would be submitted to a future meeting and to the Audit and Assurance Committee. **[Action: Alison Munro]**

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

32/07/20 Crossrail 2 – British Library Development Agreement

Michèle Dix introduced the paper and the supplementary information on Part 2 of the agenda, which provided a summary of the Development Agreement (DA) between TfL and the British Library (BL) and the associated obligations and liabilities in advance of the DA being finalised and signed in July 2020.

BL intended to develop 2.8 acres of currently unbuilt land at the northern end of its estate. The development site was on land safeguarded for the Crossrail 2 (CR2) project. The site was required by CR2 to provide a ventilation shaft, emergency and maintenance shafts and a pedestrian passageway for the proposed Euston-St Pancras station.

A ministerial letter required CR2 to work with the BL to enable BL to continue redevelopment of its site and allow necessary works for CR2. BL would build the works required for CR2, as part of the DA, so that when CR2 did come forward, the BL site was not disturbed.

A Direct Agreement between TfL and Stanhope/Mitsui Fudosan (UK) Limited would also be required to set out the works which are required.

The Chair of the Committee, in consultation with Committee Members, noted the paper and the related paper on Part 2 of the agenda, and approved Land

Authority of the sum set out in the Part 2 paper for the purpose of the Development Agreement between TfL and the British Library and the related lease with the British Library and Direct Agreement with Stanhope/Mitsui Fudosan (UK) Limited.

33/07/20 London Underground Fleet Heavy Overhaul Programme

Adie Shepherd introduced the paper, which set out the Programme and Project Authority request for the London Underground (LU) Fleet Heavy Overhaul Programme. The paper included programme costs until December 2020 and any commitments required during the period, some of which would extend until 2025

The Programme delivered large scale heavy maintenance activities on LU's existing fleet of passenger rolling stock and rail adhesion trains. The Programme maintained the safety and reliability of the passenger fleets, until they could be replaced by the introduction of a new fleet.

There were three primary types of activities undertaken in the Programme: programme lifts, for example the overhaul of suspension systems; heavy overhaul, for example works on heating and ventilation; and door overhauls. While out of service, TfL would take the opportunity to deliver life extension works.

Over the last 12 months, the workstream had delivered against its targets, including completion of the planned number of Programme Lifts on the Victoria line and Bakerloo line trains and planned life extension work on the Piccadilly line fleet.

The Authority request was driven by long lead times for orders between July and December 2020.

The Programme focussed on the mechanical aspects of heating and ventilation; information would be provided to the Safety, Sustainability and Human Resource Panel on the direction of air flows within carriages, in the context of Covid-19.

[Action: Adie Shepherd]

Lorraine Humphrey told the Committee that Project Assurance had worked with finance teams to ensure that the Authority requested was the minimum required to achieve economies of scale.

The Chair of the Committee, in consultation with Committee Members, noted the paper and approved additional Programme and Project Authority of £108.8m (outturn including risk) for the continuation of the Programme bringing the total Programme and Project Authority to £241.1m

34/07/20 Delivering the London Streetspace Programme and priority schemes in the Healthy Streets Programme: 2020/21

Nigel Hardy introduced the paper, which set out how the new programme would help deliver the Mayor's 'Restart and Recovery' Covid-19 response plans for London. The paper also set out proposals to restart priority schemes in the Healthy Streets Programme.

The primary objective of the London Streetspace Programme was to promote cycling and walking in London, to avoid a car-based recovery and the overuse of public transport. The Programme's scope allowed for the reallocations of road space for pedestrian social distancing, the delivery of strategic cycle routes, enhanced bus lanes, and the provision of low traffic neighbourhoods on borough roads. To date, there had been 14.8km of new or upgraded cycle lanes, 16,000 sqm of highway reallocated to pedestrians and 860 borough Streetspace schemes that had been funded. There was a strong alignment with the Department for Transport's parallel funding stream, which would see a further £25m of national funding awarded within London.

A relatively small number of schemes would be restarted within the Healthy Streets Programme, prioritised on: whether they were substantially complete; contractually committed; legally required; safety or operational critical; or being delivered by third party funding.

There had been no critical issues identified. Project Assurance had raised four issues and IIPAG had raised three, all of which had been accepted and responded to.

Members welcomed the work that had been completed in a short period of time.

Monitoring of the Programme and schemes was underway; where possible, temporary schemes that delivered benefits would be made permanent. TfL would look at the whole life cost, as some temporary measures, such as plastic bollards, may have a slightly longer-term management cost. Lessons were being learned on how junctions were treated; to get the full usage out of traffic signal technology a more permanent solution may be required.

It was recognised that the increase in people using cycles would necessitate cycling proficiency training.

The Chair of the Committee, in consultation with Committee Members, noted the paper and:

1 approved Programme and Project Authority of £97.6m for 2020/21 comprising:

(a) £50.0m to deliver the London Streetspace Programme through borough-led interventions;

- (b) £11.8m to deliver the London Streetspace Programme through TfL-led interventions;**
 - (c) £27.1m to continue construction of safety improvements at Old Street Roundabout;**
 - (d) £3.4m to restart schemes within the Healthy Streets Programme which are currently on-site and substantially complete but subject to the Safe Stop request;**
 - (e) £3.4m to restart priority (non-Streetspace) schemes within the Healthy Streets Programme design stage;**
 - (f) £2.0m to deliver bus priority measures; and**
 - (g) the continuation of third party funded schemes with the Healthy Streets Programme, subject to securing third party funding for them;**
- 2 approved restated Programme and Project Authority for the Healthy Streets Programme of £811.4m (reduced from £1,182.5m) to up to the end of financial year 2022/23 as set out in this paper, which sum included the items specifically listed at paragraph 1 (c)-(g) above; and**
- 3 noted that Procurement Authority in respect of various elements of the London Streetspace Programme and Healthy Streets Programme will be sought at officer level in accordance with Standing Orders.**

35/07/20 Air Quality Management Programme

Nigel Hardy introduced the paper and supplementary information on Part 2 of the agenda, which provided an update on the Air Quality Systems projects within the Air Quality Management Programme, consisting of the Ultra Low Emission Zone Expansion 2021 (ULEX), Low Emission Zone tighter (LEZ), HGV Safety Permit Scheme (DVS), the Camera Refresh project and associated Scrappage Schemes (Van and Minibus, and Car and Motorcycle schemes).

Since the introduction of the Ultra Low Emission Zone (ULEZ) in central London in April 2019, there had been significant improvements in air quality, including a 44 per cent reduction in roadside NO₂ between February 2017 to January 2020 (in the ULEZ). In January 2020, there were 44,100 fewer polluting vehicles being driven in central London every day, with 79 per cent of vehicles meeting the ULEZ emission standards (up from 39 per cent in February 2017).

In response to the Covid-19 pandemic, the Congestion Charge, LEZ and ULEZ schemes were suspended between 23 March and 18 May 2020. The new LEZ standards and charges and DVS enforcement had both been postponed until March 2021.

The Mayor announced the intention to implement temporary changes to the scope of the Congestion Charge scheme from 22 June 2020. The changes required variations to the existing contract.

Project Assurance and the Independent Investment Advisory Group (IIPAG) conducted a target assurance review, with a focus on programme schedule changes and their impacts. Several schemes would run in parallel, rather than sequentially, but the Project milestones were still achievable.

Project Assurance and IIPAG found no critical issues; Project Assurance raised four issues and IIPAG raised one issue. All were accepted and responded to.

The Chair of the Committee, in consultation with Committee Members, noted the paper and the related paper on Part 2 of the agenda and approved:

- 1 additional Procurement Authority in the sums requested in the paper on Part 2 of the agenda to extend the contracts with Capita Business Services Limited (Capita) to develop and operate projects within the Air Quality Management Programme and to allow for the continuation of supporting business as usual activities; and**
- 2 additional Procurement Authority in the sums requested in the paper on Part 2 of the agenda to allow Siemens Mobility Limited (Siemens) to continue delivering detection and enforcement infrastructure.**

36/07/20 Members' Suggestions for Future Discussion Items

Howard Carter introduced the item and the Committee's updated forward plan.

The Chair requested that additional informal briefings be provided, in light of the impact of Covid-19 on the Investment Programme, to discuss future agenda items.

[Action: Secretariat]

Members requested that an update be provided, once the impact on future funding arrangements on the capital programme had been determined.

[Action: Secretariat]

The Committee noted the forward plan.

37/07/20 Any Other Business the Chair Considers Urgent

There was no other urgent business.

38/03/20 Date of Next Meeting

The next scheduled meeting of the Committee would be held on Friday 16 October 2020 10.00am.

39/03/20 Exclusion of the Press and Public

The Committee agreed to exclude the press and public from the meeting, in accordance with paragraph 3 of Schedule 12A to the Local Government Act 1972 (as amended), when it considered the exempt information in relation to the items on: Elizabeth Line Readiness and Crossrail Update; Crossrail Limited Board Appointments; Independent Investment Programme Advisory Group – Quarterly Report; TfL Project Assurance Update; Crossrail 2 – British Library Development Agreement; and Air Quality Management Programme.

The meeting closed at 11.37am.

Chair: _____

Date: _____

Programmes and Investment Committee



Date: 16 October 2020

Item: Matters Arising and Actions List

This paper will be considered in public

1 Summary

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

2 Recommendation

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

List of appendices to this report:

Appendix 1: Actions List

List of Background Papers:

Minutes of previous meetings of the Programmes and Investment Committee.

Contact Officer: Howard Carter, General Counsel

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Programmes and Investment Committee Action List (reported to the meeting on 16 October 2020)

Actions from the meeting of the Programmes and Investment Committee held on 20 July 2020

Minute No.	Description	Action By	Target Date	Status note
31/07/20	TfL Project Assurance Update: Value for Money IIPAG was looking at a methodology to establish value for money for programmes that did not typically fit within the usual business case methodology. A report would be submitted to a future meeting and to the Audit and Assurance Committee.	Alison Munro/Lorraine Humphrey	September 2020	Complete. A report was submitted to the September 2020 meeting of the Audit and Assurance Committee. The report is also included as an appendix to the IIPAG item on this agenda.
33/07/20	London Underground Fleet Heavy Overhaul Programme: Air flow in carriages Information would be provided to the Safety, Sustainability and Human Resource Panel on the direction of air flows within carriages, in the context of Covid-19.	Adie Shepherd / Alexandra Batey	September 2020	Complete. A note was circulated to SSHRP Members on 7 October 2020
36/07/20 (1)	Members' Suggestions for Future Discussion Items: Investment Programme The Chair requested that additional informal briefings be provided, in light of the impact of Covid-19 on the Investment Programme, to discuss future agenda items.	Secretariat	Ongoing	Secretariat will confirm dates with Members and staff.
36/07/20 (2)	Members' Suggestions for Future Discussion Items: Capital Programme Members requested that an update be provided, once the impact on future funding arrangements on the capital programme had been determined.	Secretariat	September 2020	Complete. Members will receive a briefing following the meeting.

Actions from previous meetings of the Committee

Minute No.	Description	Action By	Target Date	Status note
05/03/20	<p>Elizabeth Line Operational Readiness and Crossrail Update: Bombardier takeover</p> <p>A note would be provided to the Committee on the implication of the takeover of Bombardier.</p>	Howard Smith	October 2020	A note is being prepared and will be shared with Members once complete.
06/03/20	<p>Crossrail Central Operating Section (CCOS) Traction Power: Influencing policy and regulations</p> <p>Members requested that an update be provided on what extent TfL could influence NR's strategy for traction CO2 emissions reduction to ensure that it aligns with the Mayor's Transport Strategy and how it can influence ORR regulation and government policy in this area.</p>	Howard Smith	July 2020	Complete. A note was sent to Members on 4 August 2020.
07/03/20	<p>Investment Programme Report – Quarter 3 2019/20: Fiveways</p> <p>Work was ongoing to update the business case for Fiveways Corner in Croydon and to ensure the project remained aligned with the latest developments within the Croydon Growth Zone ... an update paper be given on developments around the scheme and how it aligned with the Mayor's Transport Strategy.</p>	Alexandra Batey	-	Included on Forward Plan
07/03/20	<p>Investment Programme Report – Quarter 3 2019/20: Rotherhithe Tunnel</p> <p>Members asked that a paper on the Rotherhithe Tunnel be provided to a future meeting.</p>	Gareth Powell	-	Included on Forward Plan
11/03/20	<p>Crossrail 2</p> <p>Members requested that, following the spending review, a briefing be given on the implications for CR2 and the carbon model for the project.</p>	Michèle Dix	-	Included on Forward Plan

Minute No.	Description	Action By	Target Date	Status note
15/03/20	Surface Transport Asset Renewals Programme Delivery and budget would be kept under review but as many projects were safety critical they would need to be prioritised. Members would be provided with an update on the Programme at a future meeting of the Committee.	Alexandra Batey	-	Included on Forward Plan
17/03/20 (3)	Member Suggestions for Future Discussion Items: Four lines modernisation Once the new programme for Four Lines Modernisation had been established, a briefing or update paper would be provided to the Committee.	Stuart Harvey	-	Included on Forward Plan
79/12/19 (2)	Investment Programme Report – Quarter 2, 2019/20: Data security A note would be provided to Members on what protection was used to ensure the data that TfL held was secure, such as data encryption, in addition to security measures like firewalls.	Shashi Verma	September 2020	Complete. A note was sent to Members on 8 October 2020
83/12/19	Air Quality Programme: Plans beyond 2021 A briefing was requested on what was in the pipeline beyond 2021, TfL's further ambitions and the strategy to achieve them.	Alex Williams/Gareth Powell	March 2021	Included on Forward Plan
31/05/19	Air Quality Management Programme: Privacy and Data Security As the Ultra Low Emission Zone Extension was implemented, TfL would necessarily capture more data, as Air Quality Management schemes spread over a wider geographical area. Members requested that a briefing be provided on privacy and data security.	Alex Williams	September 2020	Complete. A note was sent to Members on 8 October 2020.

Minute No.	Description	Action By	Target Date	Status note
10/03/19	<p>Technology and Data Programme and Project Authority for Financial Years 2019/20 and 2021/22: Digital Pocket Map.</p> <p>Members liked the idea of the Digital Pocket Map app and asked whether it could be shared, once a fully functioning version had been created.</p>	Shashi Verma	Autumn 2020	Complete. This app has been launched as TfLGo and is available to download from the Google Play and the Apple App Store.
25/05/18	<p>London Underground Legacy Signalling and Information: Use of innovative technology</p> <p>The Committee requested a future discussion on the use of innovative technology for signalling upgrade works, such as 5G.</p>	Andy Lord	-	Included on Forward Plan

Programmes and Investment Committee



Date: 16 October 2020

Item: Use of Delegated Authority

This paper will be considered in public

1 Summary

- 1.1 This is a standing item on the agenda to inform the Committee of any use of delegated authority by the Committee, through Chair's Action or of Procurement Authority and Programme and Project Authority (in respect of matters within the Committee's remit) granted by the Commissioner and the Chief Finance Officer in accordance with delegated authorities under TfL's Standing Orders since the last meeting of the Committee. The paper also provides information on Mayoral Directions to TfL within the Committee's remit.
- 1.2 Since the last meeting of the Committee on 20 July 2020, there have been:
 - (a) no decisions taken by Chair's Action;
 - (b) no Mayoral Directions within the Committee's remit;
 - (c) no approvals by the Commissioner; and
 - (d) five approvals by the Chief Finance Officer, who approved Procurement Authority for Grange Hill to Chigwell stabilisation works; additional functionality for the new DLR rolling stock; saloon refurbishment design for the Bakerloo, Central and Waterloo & City lines fleets; and two approvals for the supply of components for fleet overhaul and other programme maintenance.
- 1.3 A similar report is submitted to the Finance Committee in respect of the use of Chair's Action and of Procurement Authority and Land Authority granted by the Commissioner and the Chief Finance Officer in respect of matters within the Finance Committee's remit, together with relevant Mayoral Directions.

2 Recommendation

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

3 Use of authority delegated by the Board

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

4 Use of Chair's Action

- 4.1 Under Standing Order 114, in situations of urgency, the Board delegates to each of the Chair and the Chairs of any Committee or Panel the exercise of any functions of TfL on its behalf, including the appointment of Members to Committees and Panels. Any use of Chair's Action is reported to the next ordinary meeting.
- 4.2 There have been no uses of Chair's Action since the last meeting of the Committee.

5 Programme and Project Authority Approvals

- 5.1 To enable an appropriate level of governance, processes are in place for the authorisation, control and reporting of projects.
- 5.2 Programme and Project Authority will normally be granted by the Committee for all programmes and projects as part of the defined Sub-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 Sub-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. As the Committee receives and approves more Sub-Programmes, the number of individual approvals at project level will diminish.
- 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 The Committee will also be informed of the implementation of any applicable Direction from the Mayor relating to TfL's Programmes and Projects. There is nothing to report for this meeting.

Approvals by the Commissioner

- 5.5 Since the last meeting of the Committee, the Commissioner has not approved any Programme and Project Authority requests within the Committee's remit.

Approvals by the Chief Finance Officer

- 5.6 Since the last meeting of the Committee, the Chief Finance Officer has not approved any Programme and Project Authority requests within the Committee's remit.

6 Procurement Approvals

Approvals by the Commissioner

- 6.1 Since the last meeting of the Committee, the Commissioner has not approved any Procurement Authority requests in respect of matters within the Committee's remit.

Approvals by the Chief Finance Officer

- 6.2 Since the last meeting of the Committee, the Chief Finance Officer has approved five Procurement Authority request in respect of matters within the Committee's remit, relating to Grange Hill to Chigwell stabilisation works; additional functionality for the new DLR rolling stock; saloon refurbishment design for the Bakerloo, Central and

Waterloo & City lines fleets; and two approvals for the supply of components for fleets overhaul and other programme maintenance (programme lifts, which predominately involves overhaul of suspension, wheelsets, motors and brake systems), as set out in Appendix 1.

7 Mayoral Directions to TfL

- 7.1 The Greater London Authority Act 1999 (as amended), permits the Mayor to issue to TfL general directions as to the manner in which TfL is to exercise its functions or specific directions as to the exercise of its functions (or not to exercise a power specified in the direction). Directions are also often made in relation to the implementation of matters in respect of which the Mayor delegates statutory powers to TfL.
- 7.2 The Mayor makes Mayoral Directions through Mayoral Decisions. Papers for Mayoral Directions set out the financial and other implications. If those implications change over time, that will be reported to the GLA.
- 7.3 All Mayoral Decisions are issued in writing, with the information that is not exempt from publication included on the GLA's Decisions Database on its website: <https://www.london.gov.uk/about-us/governance-and-spending/good-governance/decisions?order=DESC>.
- 7.4 Mayoral Directions fall into three broad categories: those addressing technical issues relating to statutory powers; those related to commercial development activities; and those related to projects and programmes. Mayoral Directions relating to TfL are reported to the Board's Committees for discussion as soon as possible after they are received by TfL or published. Regular reports will list the relevant Directions for as long as they are applicable.
- 7.5 Annually the Audit and Assurance Committee considers the list as part of its consideration of the annual audit plan to ensure that appropriate audit resource is applied to assurance on TfL's work in implementing Mayoral Directions. This will also be kept under review at each quarterly meeting of that Committee.
- 7.6 A summary of current Mayoral Directions to TfL is maintained on the "How we are governed" page on our website, with links to the relevant Mayoral Decisions: <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.
- 7.8 Since the last meeting of the Committee, no Mayoral Directions to TfL within the Committee's remit have been published.

List of appendices to this report:

Appendix 1: Summary of Procurement Authorities approved by the Chief Finance Officer.

List of Background Papers:

None

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Appendix 1: Summary of Procurement Authorities approved by the Chief Finance Officer

Approval Date	Contract/Project Name	Value (£k)	Approver
18/09/2020	Contract Award Recommendation for Grange Hill to Chigwell stabilisation works	6,654	Chief Finance Officer
22/09/2020	DLR Rolling Stock Replacement Programme – Additional Functionality to Second Line Maintenance Device (SLMD)	15,575	Chief Finance Officer
18/09/2020	Saloon Design for 72TS Bakerloo Line, 92TS Central Line and Waterloo & City Line	5,950	Chief Finance Officer
18/09/2020	Supply of Bearings for 92 & 96 stock Programme Lifts	888	Chief Finance Officer
18/09/2020	Supply of Air Springs for S-Stock Overhaul	6,618	Chief Finance Officer

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Programmes and Investment Committee



Date: 16 October 2020

Item: Investment Programme Report – Quarter 1, 2020/21

This paper will be considered in public

1 Summary

- 1.1 The Investment Programme Report describes the progress and performance in Quarter 1, 2020/21 of a range of projects that will deliver world-class transport services to London. The time range for the report has been extended from 1 April to 1 August 2020.
- 1.2 A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendation

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

List of appendices to this report:

Appendix 1: Investment Programme Report Quarter 1, 2020/21

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

List of Background Papers:

None

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Transport for London investment programme report

Extended Quarter I 2020/21
(1 April 2020 – 1 August 2020)

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Please note that safety and sustainability information will no longer be referenced in this report. There is a quarterly Safety, Sustainability and Human Resources Report published on our website, which provides an overview of health, safety and environmental performance for London Underground, TfL Rail, Surface Transport and Crossrail services.

Introduction

This report provides an update on a range of projects that will create world-class transport services in London

The quarterly investment programme report gives a progress update on the major projects and sub-programmes that seek authority each year (unless extraordinary approvals are needed) to the Programmes and Investment Committee.

For each major project or programme, the financial and milestone data represents the position at the end of the quarter and we include commentary for key achievements and progress made. The report also contains, as far as possible, updates on any notable progress made after quarter end.

For a programme and project with a defined start and end, we include when it is planned to be substantially complete and being used by customers. Works that are delivered in a prioritised sequence, such as road resurfacing or track renewal, are referred to as 'annual' as they are controlled and measured within each financial year. This report only includes progress on committed projects and programmes.

Financial records of spend to date, authority and Estimated Final Costs (EFC) represent the entire duration of each separate project or programme, except for annual portfolios where spend to date, authority and EFC figures represent the current financial year. Where authority is significantly lower than EFC, it has been given for the current stage of works and further authority will be sought when appropriate.

To ensure continued transparency across our organisation, the reporting EFC for projects is based on the current risk profile and opportunity realisation at the time of publication. As a result, project EFC could fluctuate every quarter, however, this does not automatically mean there is an increase in spend authority.

Owing to the coronavirus pandemic there is an unprecedented impact on our projects and programmes. As such, we are unable to accurately assess the full impact on our EFCs.

We also include cumulative EFC movements for savings and efficiencies that have been embedded since our 2018 Business Plan, while protecting safety, services and reliability. Numbers in brackets represent an EFC increase and numbers without brackets represent an EFC decrease. Commentary is provided for cumulative movements greater than £2m.

This report does not contain commercially sensitive information and therefore some EFCs and authorities are marked with an asterisk until the main contract has been awarded. On schemes where there is commercial confidentiality, the EFC, authority and spend to date may also be withheld.

All financial figures are gross and may not appear to align with costs detailed in the TfL Budget, which are net of any third-party funding. In addition to the committed projects and programmes included in this report, we will be seeking to obtain capital spend authority for schemes such as the Bakerloo Line Extension and Crossrail 2.

Each programme or project also has an overall RAG milestone status, which represents the average forecast date variance against plan for 2020/21 strategic milestones:

On time or early:



Up to 89 days late:



90 or more days late:



N/A (without 2019/20 strategic milestones):





Safety is at the heart of everything we do

The strategic milestones for the first half of 2020/21 – the key milestones listed in the TfL Budget – are detailed in the Appendix (page 39).

Our investment programme is delivered by the following areas of the business: Major projects, London Underground, Surface and Other and the report structure reflects this

- Major projects is responsible for our largest and most complex projects. It comprises line upgrades such as the Piccadilly line upgrades and the Four Line Modernisation, network extensions, and major station upgrades, which are covered on pages eight to 15 of this report. Future projects (see page 16) will be reported in detail following financial authority approval
- London Underground comprises stations, accessibility, track renewals, power, cooling and energy, rolling stock renewals and signalling and control, which are covered in pages 17 to 21
- Surface Transport comprises Healthy Streets, Air quality, Public transport and Asset investment. These are covered in pages 22 to 31
- Other comprises technology and data, TfL Growth Fund and the Elizabeth line (including Crossrail), which are covered in pages 32 to 38

The impact of the coronavirus pandemic

In March, to help fight the spread of COVID-19, the Government and the Mayor gave clear instructions to stay safe and to stop travelling in all cases other than people making absolutely essential journeys.

For this reason, we brought all our construction projects, including Crossrail, to a temporary Safe Stop unless they needed to continue for operational safety reasons. We continued with essential maintenance of the transport network.

This was done to ensure the safety of our construction and project teams and also to further reduce the number of people travelling on the public transport network. It was vital that the transport network is only used for absolutely essential journeys.




For each project where work has restarted on site, a full review of the working practices was undertaken, together with submissions from the supply chain on how they would manage their site and their workforce in accordance with the social distancing guidelines. These were then subject to a peer review of construction managers and work only restarted once this process had been completed.

Mayor's Transport Strategy themes

The Mayor's Transport Strategy sets out a bold vision for a growing, welcoming London, where 80 per cent of journeys will be made by walking, cycling or public transport by 2041.

We are making streets healthy, pleasant and productive places to stop at, travel through and live on. Listening to and acting on suggestions from our customers will enable us to make walking, cycling and public transport the first choice for the vast majority of trips, and everyday operational excellence will unlock the new jobs and homes our city needs.

This report looks at our investment programme in respect of the following themes from the Mayor's Transport Strategy:

- Healthy Streets and healthy people 
- A good public transport experience 
- New homes and jobs 



Streetspace opens up more space for Londoners to walk and cycle

Business at a glance

Keeping London moving, working and growing to make life in our city better

How we report on our business

Underground

London Underground

Elizabeth line

Currently operating as TfL Rail

Buses, streets and other operations

London Buses, Transport for London Road Network, London Dial-a-Ride, London River Services, Santander Cycles, Victoria Coach Station and Emirates Air Line

Rail

DLR, London Overground and London Trams

Major projects

Responsible for our largest and most complex projects

Property development

Our commercial and residential estate and building portfolio

Media

Advertising estate and digital marketing infrastructure

Facts and figures

979 Trains on the TfL network



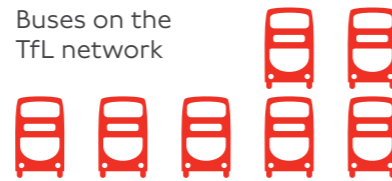
580km TfL-operated highways



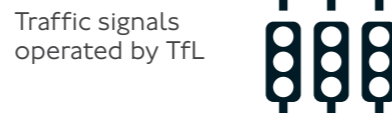
755km TfL-operated Rail and London Underground routes



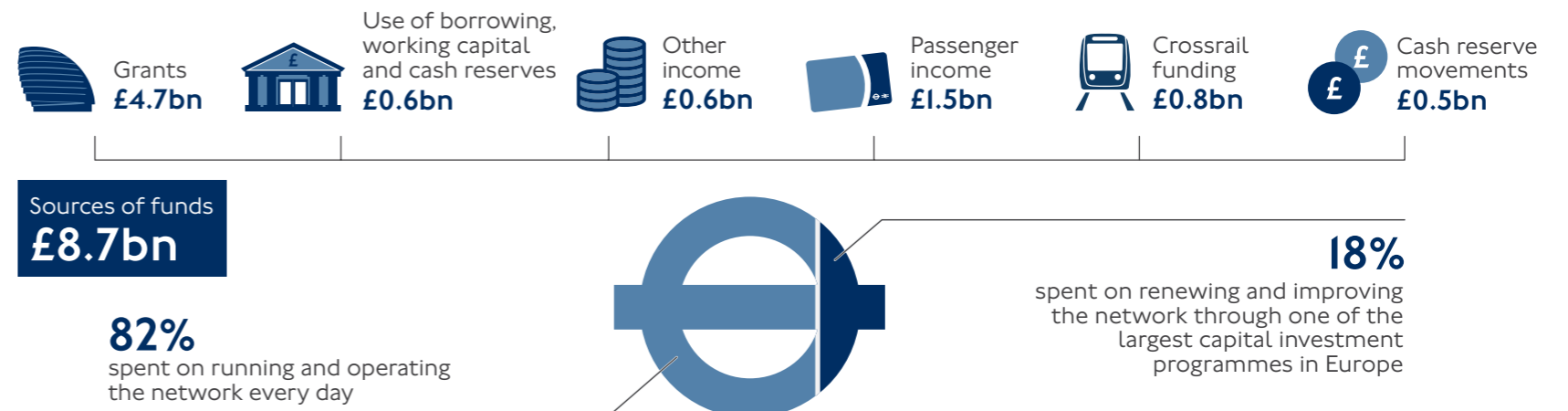
9,330 Buses on the TfL network



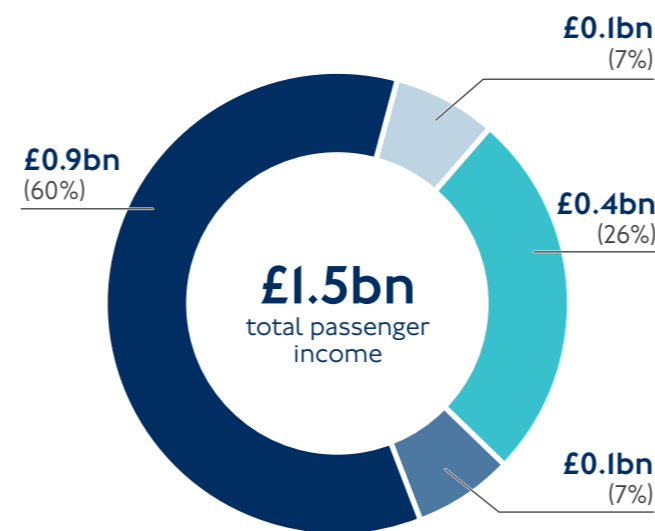
6,300 Traffic signals operated by TfL



2020/21 Emergency Budget at a glance

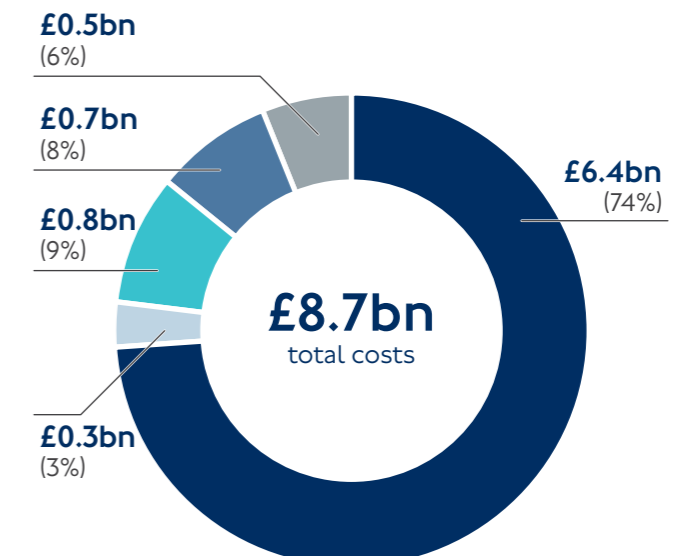


Total passenger income



Legend for Total passenger income: London Underground, Buses, Rail, TfL Rail

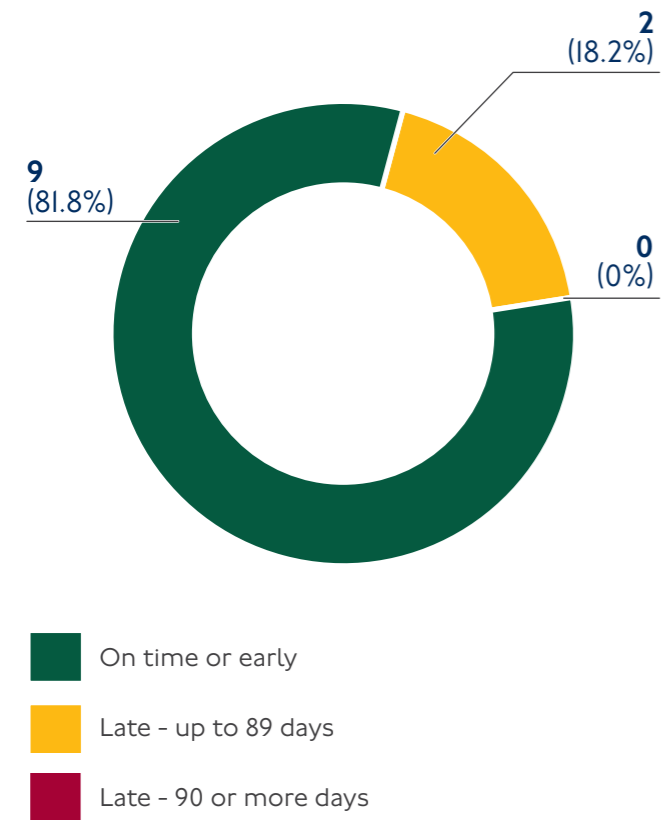
Total costs



Legend for Total costs: Operating cost, Crossrail, Net financing, Capital renewals, New capital investment

2020/21 strategic milestone performance strategy

The overall performance for all TfL 2020/21 strategic milestones is summarised as follows:



The late milestones are shown in the Appendix on page 39.



Project milestones are shown as green, amber or red

Major projects

Line upgrades 

Four Lines Modernisation

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2023	4,926	5,412

2020/21 strategic milestone RAG On Track

We have introduced 192 new S-stock trains on the Circle, District, Hammersmith & City and Metropolitan lines.

The first section of the signalling system operating between Hammersmith and Euston Square and up to Finchley Road on the Metropolitan line, was extended in Quarter 2 2019/20.

The operation of the new signalling system was extended from Latimer Road to Euston Square on the Circle and Hammersmith & City lines, and from there to Finchley Road on the Metropolitan line, and to Paddington on the District and Circle lines. This was a significant step for the project as it continues to boost capacity.

Quarter 1 2020 saw a Safe Stop of all site works in response to the coronavirus pandemic. To mitigate the financial impact of this, 55 per cent of our team were furloughed. The programme was authorised to restart site works from 6 June 2020. Due to much of the works being inside and/or in small spaces, such as cabs, a staged approach was taken to maintain the safety of staff while restarting targeted works.

EFC (£m)	EFC movement post plan (£m)
5,339	14

The EFC reflects the revised budget and is based on information available at that time. Within Major projects a series of deep-dive reviews is underway, assessing and challenging cost and schedule. These reviews will provide an update on the full impacts of the coronavirus pandemic and related issues.

There was a strategy to drive down costs to ensure later increases in the complex programme could be dealt with efficiently. Reductions were achieved through value engineering solutions, innovation and providing optimum scope to bring the planned benefits.

Signalling software development work continued with Thales throughout the pandemic and continues to support testing and go-live plans for year 2020/21.

While virtually all works were stopped a small number of targeted interventions were undertaken to further drive system reliability. These works required innovation and cooperation during the lockdown to ensure staff safety and deliver increased reliability.

The coronavirus pandemic resulted in the suspension of District line operator training for the new Communication Based Train Control. While this is being restarted there remains a risk on the availability of trained and familiarised operators to support service. This may result in a further delay of the planned go-live date.

In response to the ongoing financial challenge, the programme has implemented a number of measures to minimise expenditure through furlough, challenging scope and rephasing of works.

The above measures, combined with the Safe Stop and progressive return to site works, have had an impact of up to five months on a range of key milestones. The complex interaction of these changes in combination with the annual timetable change cycle is under review. However, it is likely that the introduction of new timetables, increasing train frequency in the central area, may be delayed.

The programme continues to drive toward delivering within the Emergency Budget. There are a number of pressures however work is ongoing, in collaboration with our key suppliers, to determine confidence in the outcome for the year.

The combined effect of the coronavirus pandemic delays and the complexity of re-planning the closure-based works integrating future events in London, is expected to lead to an extension of the programme. While this planning activity remains ongoing it is anticipated that the EFC will increase to reflect this delay. The re-planning and revised cost estimate will be complete in line with the next Investment programme report.



Railway System Enhancements (formerly World Class Capacity)

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2024	130	245

2020/21 strategic milestone RAG

This programme includes upgrades to signalling, power, trains and track to maximise capacity on the Jubilee and Northern lines with the existing train fleets.

While many of the works are standalone, a significant proportion are essential to other programmes, including further upgrades to the Jubilee line, the opening of the Northern Line Extension, as well as the reconfiguration of the Northern line at Bank.

To enable the new capacity works, we have completed speed improvement and track works to the Northern line and continue to focus on delivering power enhancement works, including an upgrade to the signalling software on the Northern line. A new wheel lathe has been delivered to Morden depot and its commissioning is getting underway. We have remobilised our sites following the Safe Stop and are now operating in a COVID-19 secure way, the full impact of this is being assessed.

On the Jubilee line, a new wheel lathe has been delivered to Stratford Market depot and the tender response for a signalling upgrade has been received and is being considered as part of the wider Jubilee line enhancements. The continued business requirement, priority and timing of proposed capacity enhancements to the Jubilee line are being reviewed as part of the challenges caused by the impact of the coronavirus pandemic.

EFC (£m)	EFC movement post plan (£m)
181	14

The EFC reflects the revised budget and is based on information available at that time. Within Major projects a series of deep-dive reviews is underway assessing and challenging both cost and schedule. These reviews will provide an update on the full impacts of the coronavirus pandemic and related programme issues. The output of the reviews will be reflected in the next Investment programme report.

The EFC has reduced since the 2019 Business Plan as a result of realising savings of £18m on uncommitted power works, following an assessment of the required resilience works. This has been offset by an increase in risk of £2m across the programme and an increase of the uncommitted cost estimate of £2m - this is being reviewed further. The impacts of the coronavirus pandemic remain under review.



DLR Rolling Stock and Systems Integration

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2025	56	603

2020/21 strategic milestone RAG

New DLR trains and infrastructure are vital to support the regeneration of the east London area.

Sixty per cent of the existing DLR fleet will be replaced as part of this programme and it will provide increased capacity on the line. The Beckton depot will be extended, with sidings for the new trains, a new maintenance facility and a new automatic train operation test track. Thales automatic train operation signalling system will be updated and the traction power strengthened.

The contract for the next generation of DLR trains by Construcciones y Auxiliar de Ferrocarriles is under way. Preliminary design is complete and final design has started. The manufacture of fixtures and items for the new trains has begun. A 1:1 scale mock-up of the train has been manufactured and is being shipped to the UK.

There has been a 12-week impact on train manufacture as a result of the coronavirus pandemic and a revised depot delivery strategy has been implemented, resulting in the deferral of the Southern Sidings works from 2020/21 to 2022/23. This allows the Northern Sidings to proceed to the revised programme. The Thales signalling system update has proceeded to plan with the completion of the Preliminary Design.

Cost impacts and additional risk has increased by £6m however it is proposed to offset these increases through reduction in other risk allowances.

EFC (£m)	EFC movement post plan (£m)
603	0

The EFC reflects the revised budget and is based on information available at that time. Within Major projects a series of deep-dive reviews is underway assessing and challenging both cost and schedule. These reviews will provide an update on the full impacts of the coronavirus pandemic and related programme issues. The output of the reviews will be reflected in the next Investment programme report.



Piccadilly Line Upgrade – rolling stock (formerly Deep Tube Upgrade Programme)

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2027	196	3,294

2020/21 strategic milestone RAG On Track

This programme is designed to deliver a fleet of newly designed, high-capacity, walk-through, air-cooled trains to replace some of the oldest on our network.

Due to affordability challenges caused from the coronavirus pandemic, we had to enact a six-month deferral to key infrastructure works supporting the new train introduction. Trains are now due to arrive prior to infrastructure works being ready to receive them. The forecast date for first train into passenger service is now April 2025 (from October 2024). The ambition is to pull this delay back over time.

The preliminary design for the new trains has continued to plan. Collaborative discussions are ongoing with Siemens Mobility Ltd about the impact of the coronavirus pandemic on the train delivery schedule, which has resulted in a forecast four-month delay to detailed design completion. This is now forecast for completion in February 2021 (from October 2020). This is still in advance of the planned milestone in March 2021.

EFC (£m)	EFC movement post plan (£m)
2,936	28

The EFC reflects the revised budget and is based on information available at that time. Within Major projects a series of deep-dive reviews is underway assessing and challenging both cost and schedule. These reviews will provide an update on the full impacts of the coronavirus pandemic and related programme issues. The output of the reviews will be reflected in the next Investment programme report.

Since the 2019 Business Plan £54m of cost reductions have been identified. Of this, £29m relates to risk and uncertainty mitigation. These savings are offset by a £10m increase in project length as a result of the emergency budget decision to defer third party contract spend by six months where possible, increase in new rolling stock scope for anti-dragging doors and enhanced cab security and other minor increases.

The One Person Operation CCTV contract has been awarded.

To introduce new rolling stock, we need to reinforce and upgrade the London Underground High Voltage power network. We have approval for the High Voltage Power Procurement Strategy, this will enable the High Voltage Design and Build Framework Supplier Questionnaire to be released to the market, the first step in this process.

The current train radio systems are obsolete, so we are working with Connect to develop a new radio in time for the introduction of the new rolling stock. The concept design work for this is complete.

The Piccadilly Line Upgrade will drive down costs while delivering significant safety and sustainability improvements. As part of this we are working with the Department for Transport (DfT), Network Rail and the supply chain under the Transport Infrastructure Efficiency Strategy and will be delivering three example projects. An updated Collaboration Agreement was issued and is close to being settled from respective legal teams. This agreement will facilitate supplier contracts to be issued to allow full commencement of these projects.

Network extensions

Northern Line Extension

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2021	952	*

2020/21 strategic milestone RAG On Track

The Northern Line Extension is a twin-tunnelled extension from Kennington to a new terminus at Battersea Power Station, via a new station at Nine Elms. This supports the regeneration of the Vauxhall Nine Elms Battersea Opportunity Area.

As a result of the coronavirus pandemic all site work on the Northern Line Extension was safely stopped on 24 March 2020. Site work restarted on 27 May 2020, which resulted in a 64-day construction delay across the programme. We continue to work with our supply chain to assess the coronavirus-related impacts and our target date for achieving train service availability between Kennington and Battersea remains Autumn 2021. However, we have now used up our contingency so any further events like a second wave of the coronavirus pandemic would impact the completion date.

EFC (£m)	EFC movement post plan (£m)
*	*

The EFC reflects the revised budget and is based on information available at that time. In Major projects a series of deep-dive reviews is underway assessing and challenging both cost and schedule. These reviews will provide an update on the full impacts of the coronavirus pandemic and related programme issues. The output of the reviews will be reflected in the next Investment programme report.

Assessment of the full impact of the coronavirus pandemic is ongoing and discussions continue with the main works contractor over both cost and schedule.

During the site Safe Stop period we continued working remotely, undertaking off-site manufacturing where possible, detailed design and producing Assurance documentation required for achieving the High Voltage 22kV Power-on milestone which was due in June and as a result of the coronavirus-related stoppage is now reforecast for early October 2020. We were able to undertake some limited but critical works on site, using an exemption process to work within the High Voltage switchgear rooms at Kennington which were undertaken adhering to Public Health England guidelines.

In dealing with the impact of the coronavirus pandemic on our works programme, we have embraced new ways of working, including the use of technology. The Railway Systems team has successfully undertaken virtual factory acceptance testing of the Emergency Traction Current Discharge System and train radio, with all tests passed successfully.

To facilitate the re-opening of the Northern Line Extension sites on 27 May we implemented measures across all sites to comply with social distancing, such as coronavirus-related signage, thermal cameras at site entrances, and segregation screening in the communal areas.

At Battersea, the remainder of the roof slab of the new station box was handed over to the Battersea Power Station Development Company, to enable the continuation of the next phases of their oversite development.

At the new Kennington Park and Green shafts, external brickwork cladding is being applied to the headhouses. Cable management system, CCTV, tunnel ventilation and ducting installation have all restarted. Landscaping works are due to start in late August.

Our main focus beyond Quarter I will be fitting-out the new stations, installing and switching on the High Voltage power supply, and extending the signalling used on the Northern line into the extension.

* This information is withheld for reasons of commercial sensitivity



Silvertown Tunnel

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2025	65	*	*	*

2020/21 strategic milestone RAG



The Silvertown Tunnel will tackle traffic congestion at the Blackwall Tunnel and the knock-on effects on travel, the environment, the economy and growth across the southeast of London.

The tunnel will connect Silvertown and the Greenwich Peninsula, which are areas subject to significant planned redevelopment in future. The new tunnel, within the extended Ultra Low Emission Zone (ULEZ), will effectively eliminate congestion and help improve air quality, with no increase in carbon emissions. It will allow for a transformative new cross-river bus network for east London, with plans for at least 20 buses per hour in each direction, all of which are expected to be zero emission. There is currently only a single bus route through the Blackwall Tunnel – the least reliable TfL bus route in London.

User charging at the Silvertown and Blackwall Tunnels, set by us, is a fundamental part of the scheme, helping to manage traffic levels for the long term.

Following an extensive tender process, the design, build, finance and maintenance contract was awarded to Riverlinx consortium on 21 November 2019. We are in discussions to arrange the relevant agreements for land access. We are

working with the utility companies to plan the required service diversions. We keep monitoring existing structures and noise levels ahead of construction. Contracts have recently been awarded for support to the next stages of traffic, environment and socio-economic monitoring and associated mitigations.

Ground investigation works have begun along with utility surveys and pavement, ecological and contaminated land survey works. Marine works began in June 2020. The start of construction notice was placed in the London Gazette on 5 August enabling new byelaws at the Blackwall Tunnel to support existing network operations.

The programme impact in relation to the coronavirus pandemic Safe Stop on 25 March 2020 and subsequent restart of the works from 27 May 2020 is likely to extend the Planned Permit to Use date. We are continuing to work through a revised programme with Riverlinx, including potential acceleration measures.

* This information is withheld for reasons of commercial sensitivity.



The Silvertown Tunnel project will link Silvertown to Greenwich Peninsula



Barking Riverside Extension

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2022	172	287

2020/21 strategic milestone RAG



We are delivering a new rail link to serve the 10,800 new homes planned for the Barking Riverside development area.

We will build a spur from the Tilbury Loop line east of Barking, to extend our service to a new station at Barking Riverside. The overall length of the extension is approximately 4.5km from Barking station; it includes modifications to the existing Network Rail infrastructure and new lines running on a viaduct of approximately 1.5km. A four-carriage London Overground service running at 15-minute intervals is planned.

During Quarter I, the coronavirus pandemic severely hampered project progress. A safe site shut down was completed on 26 March 2020 and on-site activities restarted on 8 June 2020. During this time only safety critical activities, such as inspections of temporary works, or high priority tasks which could be delivered in accordance with Public Health England’s guidelines, were granted ‘exemptions’ to be undertaken.

EFC (£m)	EFC movement post plan (£m)
*	*

During Quarter I, the EFC has been significantly impacted by the delay costs from the coronavirus pandemic, and the impact of buried utility services and mitigations to redesign the infrastructure and settle a number of compensation events.

The full impact of these factors on the EFC is still to be determined, with a full project review under way. The project continues to review all options to mitigate cost increases, as well as formalise the contractual position with the main works contractor.

While the site was closed, an exemption was granted for a contractor working for the City of London to remove a series of pylons adjacent to the viaduct. The opportunity to complete these works, while the main works contractor was off-site, has de-risked the programme and achieves a key condition for the eventual hand back of land at the end of the project.

Other activities that were granted exemptions include delivery of materials to the station site, ensuring the team were well placed for remobilisation, and preparations for the installation of the steel framework for the Barking Riverside station building. The implementation of coronavirus mitigation measures that enable greater social distancing of the workforce, such as additional welfare facilities, one way walking routes and installing body temperature cameras, was also completed prior to the restart.

During the safe site shut down we completed the designs, asset protection agreements and procurement arrangements required to resolve the remaining utilities issues preventing piling for the viaduct. Also, following the cancellation of a major signalling stage (Stage 9) that was due to take place at Easter 2020, extensive re-planning of the Rail System workstream was undertaken. Stage 9 signalling commissioning is now planned for December 2020 and stakeholder engagement to secure the possessions of Network Rail infrastructure required to deliver the revised plan is ongoing.

Easing of national lockdown arrangements and confirmation that the site is COVID-19 Secure enabled the project to restart. Following a period of remobilisation, including inductions to revised working arrangements, works to divert the Thames Water sludge main at Pier I4 have been completed. This allows removal of the redundant main prior to commencement of piling in this area. At Pier I3, completion of the pile cap redesign, engagement with UKPNS and establishment of vibration monitoring to safeguard High Speed I power cables, has enabled installation of sacrificial sheet piling ahead of the bored piling.

Rail systems works during weekend possessions has restarted with successful delivery of permanent way, overhead line equipment, signalling and telecoms activities through June and July. All signalling gantries on the existing network required for the Barking Riverside Extension have now been installed. Possessions have also been used for viaduct construction adjacent to and crossing the operational railway, including piling for the approach ramp and lifting of steel beams into place for deck spans.

At the station, the main steel frame and platform canopy are complete, the lower canopy steelwork is well underway, and blockwork has started. On the south viaduct all pile caps have been poured, pier walls are well progressed and deck spans have been installed. On the north viaduct piling is required at the last two pier locations (Piers I3 and I4) and piling for the approach ramp continues.

* This information is withheld for reasons of commercial sensitivity



Bank station upgrade

Forecast completion year

2022

Spend to date (£m)

525

Spend authority (£m)

656

EFC (£m)

701

EFC movement post plan (£m)

(38)

2020/21 strategic milestone RAG



We are boosting capacity at Bank station by 40 per cent. This includes creating a new Northern line tunnel, platform and circulation spaces, a new entrance on Cannon Street, the introduction of step-free access to the Northern line, additional interchange between the DLR platforms and two new moving walkways between the Central and Northern lines.

The project was significantly impacted by the coronavirus pandemic with all site activities safely stopped for nine weeks. The project has remobilised following extensive reconfiguration of the site including implementation of one-way systems, additional welfare facilities and updated working procedures so that social distancing guidelines can be followed. The project is fully mobilised and has returned to pre-coronavirus activity levels.

All four of the new escalator barrels in the new parts of the station are now completed. The last of these being from the Northern line to the DLR level. All but one of the additional new cross passages are now completed. Tunnelling is now nearly completed and by Quarter 3 the project will have completed all civil and tunnelling works.

The EFC reflects the revised budget and is based on information available at that time. In Major projects a series of deep-dive reviews is underway assessing and challenging both cost and schedule. These reviews will provide an update on the full impacts of the coronavirus pandemic and related programme issues. The output of the reviews will be reflected in the next Investment programme report.

The increase in EFC since the 2019 Business Plan reflects the latest view of the programme's risk and opportunities and the impact of the coronavirus pandemic which includes Safe Stop, Safe Start and prolonging the project. Further analysis of the impact of the coronavirus pandemic is ongoing which could affect the current EFC. Risk mitigation reviews are continuing, along with opportunities to reduce the current EFC. We continue to collaborate with the main works contractor to identify and realise potential savings and mitigate the impact of the coronavirus pandemic.

With tunnelling and secondary lining works that form a new link to the Central line, now complete, work has started on installing the support structures for the new moving walkways. This will reduce the journey time from the Northern line to Central line.

The new station entrance on Cannon Street continues to take shape with interior wall construction and floor screeding completed. Works to fit out services have now started. We have taken delivery of nine of the 12 new escalators that have been manufactured. These are now undergoing final preparation in readiness for installation in early 2021.

In this quarter we have carried out enabling works during several Northern line and DLR closures to prepare the existing parts of the station for the new tunnel connections.

Due to the impact of the coronavirus pandemic, the proposed window for the start of the Northern line (Bank branch) closure has been delayed to October 2021 - January 2022. The closure will tie in the new southbound running tunnel constructed as part of the project, which creates wider Northern line platforms at the station.

Cable pulling of the High Voltage cables that will feed the new station entrance has been completed and the remaining works are on schedule to enable the power to be turned on in early 2021.



High Speed 2

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2028	12	11

2020/21 strategic milestone RAG

High Speed 2 (HS2) is a new high-speed railway connecting London to the West Midlands and the North of England. Our work consists of new TfL assets, infrastructure and operational facilities at Euston and Old Oak Common.

The HS2 project has not suffered any material delay or setback from the coronavirus pandemic, with project teams in both organisations successfully transitioning to a remote working environment and are continuing to collaborate with each other. HS2 Ltd's construction partners carried out a safe-stop of all their London construction sites in March, but the majority were back in operation by the end of April following a carefully planned and risk-based review.

Following the Government's announcement in February to give the project the go ahead and the publication of the Oakervee review we have taken part in the DfT-led 'OneEuston' high level review of requirements which concluded at the end of July. The review seeks to determine the most effective way to deliver HS2 at Euston, while recognising the design requirements and constraints from all stakeholders, including HS2, Network Rail, Lend Lease, the London Borough of Camden and us.

EFC (£m)	EFC movement post plan (£m)
80	(34)

This project is fully refundable by HS2 Limited and the scope of works is dependent on third party requirements. The new EFC is based on more detailed analysis of the scope and impacts of the HS2 works as we understand them at the current time.

However, this EFC does not yet take into account the impact of the Oakervee Review as the Government has not yet responded to the Oakervee Review recommendations. The main changes to the EFC arise from increasing staff resources and bus mitigation costs.

We are working with HS2 Ltd to support the early works programme to minimise disruption at Euston and on the Hampstead Road, including alternative solutions for utilities diversions to minimise the impact on the road network, and at Old Oak Common on their planned works near the Elizabeth line depot. We are continuing to review designs for our elements of the new HS2 Euston station and the substation and ventilation building and have facilitated piling enabling works at Old Oak Common. We have continued working with HS2 Ltd and its supply chain in finalising the Blue Book suite of management processes that define the long-term working arrangements between ourselves and HS2 Ltd.

Future projects

We continue to develop major projects – currently at an early stage – that will deliver the new homes and jobs that London and the UK need.

Crossrail 2

The Independent Assurance Panel (IAP), led by David Orr, has recently carried out a 'health check' on the methodology and outcomes of Crossrail 2's 2019 Cost Estimate. Their review supports the work done to date and confirm it is a credible figure and provides significant confidence in the Strategic Outline Business Case Estimate. The IAP have put forward several recommendations that the Team will address and put forward relevant advice to the Senior Responsible Officers later this year.

Due to the ongoing financial impact from the coronavirus pandemic, we continue to discuss options with the Government about the future of the scheme. The Team have therefore been focusing on putting Crossrail 2 'in good order'. Our priority in discussions with Government going forward will be asking the Secretary of State to refresh the 2015 safeguarding directions in order to protect the route from future development.

Bakerloo Line Extension

We continue to develop aspects of the scheme, including liaising with the DfT, developing and cementing the business case for the scheme, securing greater cost certainty and confirming the shortlist of options and assessment criteria for the further stages of work. This includes an integrated ticket hall at Elephant & Castle station. We are also working with the boroughs and other stakeholders to determine further funding sources for the scheme and safeguard the preferred route alignment.

The extension of the Bakerloo line would open up wider opportunities to more people and improve air quality. It would also support thousands of much-needed jobs and homes in the New Cross, Lewisham and Catford and Old Kent Road Opportunity Areas – something that is ever more crucial in light of the coronavirus pandemic.

We are working closely with Network Rail, the Greater London Authority (GLA) and the London Boroughs of Southwark and Lewisham, to make sure we safeguard the best possible scheme. This will reflect the feedback received from our last round of public consultation, which closed in December 2019. We received 8,749 responses to the consultation and are analysing the results. We will publish our consultation report and responses to issues raised later in 2020. We continue to develop aspects of the scheme, including liaising with DfT, developing and cementing the business case, securing greater cost certainty and confirming the shortlist of options and assessment criteria for the further stages of work.



We continue to discuss the future of Crossrail 2 with the Government

London Underground

Stations 

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2022/23	173	535	1,132	0

2020/21 strategic milestone RAG

The targeted renewal of existing assets will improve safety and reliability. Station enhancements will reduce congestion and improve customer journey times.

Station enhancements

At Knightsbridge, the shell of the new parts of the station has been built and is ready for fit out. The coronavirus pandemic has impacted the procurement of contractors to carry out the fit out works throughout Quarter I, delaying the opening date of new Brompton Road entrance.

The Colindale station project was brought to a Safe Stop in line with government guidance. There was no progress in Quarter I but we will now proceed with detailed design starting in September 2020. The project will bring significant improvements, including a spacious new entrance, a new lift providing step-free access to the platforms and new homes around the station.

The Stratford south western entrance project has also been paused.

At Tottenham Hale, site works to upgrade the station were stood down on 24 March 2020. Having gone through the Safe Start process, work restarted on 30 June 2020. Construction works restarted on 6 July 2020. The existing Network Rail ticket gateline and associated structures have been demolished and excavations and foundation works are progressing.

Station developments and retail

In August, the 'start on site' milestone was met at West Ham, as works to redevelop land alongside the Jubilee line began. The site is being developed by Berkeley Homes and will provide around 4,000 new homes for London. It will improve transport connectivity through three new pedestrian, cycle and road bridges, as well as a new station entrance over the Jubilee line eastbound track. Works started following four years of negotiations between ourselves and the developer, which were successfully concluded in March 2020. Works are fully funded by the developer.

At Paddington, we are working with Great Western Developments to construct a new station entrance to the Bakerloo line, with a much-enlarged ticket hall and step-free access to the platforms as part of redevelopment of adjacent buildings. Design work and demolition of redundant assets continues.

At Walthamstow Central we are working with developer Capital and Regional on a capacity enhancement scheme. Following commercial negotiation, a Cost Indemnity Letter has been signed which allows us to recover associated internal resource costs. An internal resource has been remobilised to progress design development relating to the planned station enhancement works in preparation for submission of a revised planning application later this year.

At Waterloo, negotiations with H B Reavis to progress the demolition and redevelopment of Elizabeth House, a 1960's building over the station, are progressing after the scheme obtained planning permission in Autumn 2019. Subject to legal agreements, the developer will deliver a lift shaft providing a step-free connection to the Northern line. The developer contribution of £4.5m will deliver, at a minimum, the lift shaft. Consideration is being given as to how best to deliver the lift fit-out works. The Waterloo York Road ticket hall, which closed in November 2019 to enable the developer to undertake unforeseen remedial works, was successfully brought back into use in March 2020.

Accessibility

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2023/24	79	176	176	0

2020/21 strategic milestone RAG On Track

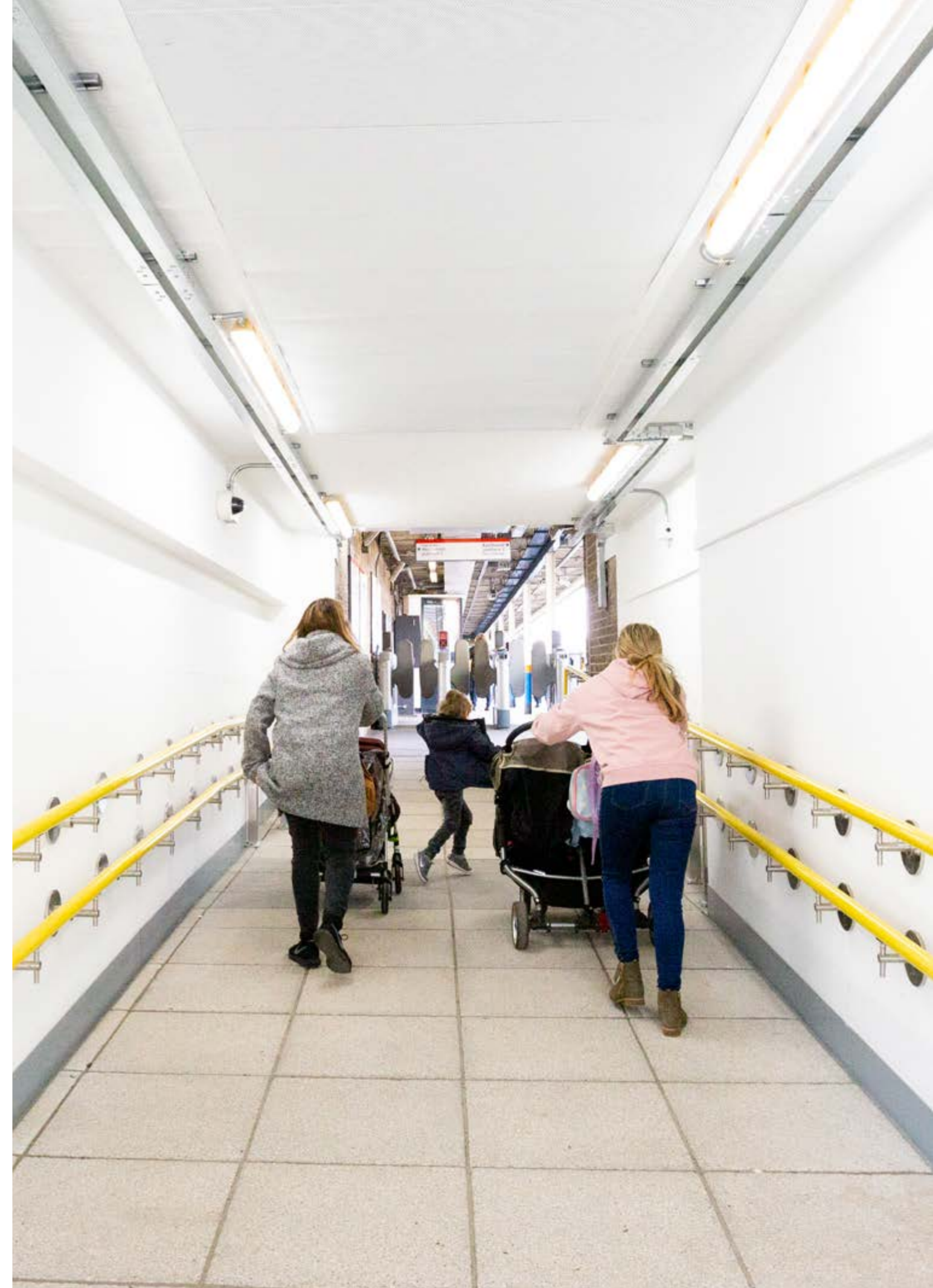
We are working on a wide programme of accessibility improvements, customer service and information enhancements across the Underground network. We will make more than a third of stations accessible by 2022 by providing step-free access at a further 12 stations.

We are working on a wide programme of accessibility improvements, customer service and information enhancements across the London Underground network. As part of the Mayor's step-free access programme we are planning to make 12 stations accessible. Four of these stations have already been completed: Newbury Park, Buckhurst Hill, South Woodford and Mill Hill East. Cockfosters is due to be completed by the end of October.

The impact of the coronavirus pandemic on the programme is being assessed. The accessibility programme undertook the Safe Stop initiative and ceased on site work on 23 March. In June, eight projects restarted works on site in accordance with government guidance and following a rigorous review of site set up and protocols to ensure the safety of operatives and customers at our stations.

The impact of revised ways of working, the agility of the wider supply chain, and its impact on on-site productivity and the delivery of step-free access is currently being reviewed.

Due to the impact of the coronavirus pandemic on our finances, work has now been paused while we await the outcome of funding discussions for three projects which were in the very early stages of construction and six projects were in the design phase before the pandemic.



Step-free access enables more people to travel on our network

Track renewals

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
Annual	11	73	73	0

2020/21 strategic milestone RAG

We are replacing our ballasted and deep Tube track, points and crossings, and track drainage infrastructure to improve reliability, reduce maintenance costs and increase capacity.

We implemented Safe Stop status in response to the coronavirus pandemic.

Following this, the only works delivered during Quarter I were those deemed operationally safety critical. These were 1,218m of rail replacement works completed on the Piccadilly line at Heathrow and 101m on Croydon Tram Link at Love Lane.

Signalling preparation work has started on site for the Acton Town Christmas works, where 11 Points and Crossings units will be replaced. The programme of agreed holding works for planned work sites cancelled due to the coronavirus pandemic has started. Additionally, planning has enabled Deep Tube Renewals to recover to previous levels of delivery for 2020/21.

Power, cooling and energy

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2023/24*	55	90	88	0

2020/21 strategic milestone RAG

We continue to support a number of third party and major projects by providing power works, such as relocating the substation at Euston station for HS2, installing cable routes for the Northern Line Extension and works for the Piccadilly line and Bank station upgrades.

Power

We are delivering a rolling portfolio of power renewal works to improve the condition of assets. The first projects are complete, including replacing substation emergency battery systems, power generation fire control systems and Central line traction power protection systems. Others are in delivery phase including depot traction isolation replacement and high voltage network switchgear.

Progress has been impacted by the coronavirus pandemic and risk-based Safe Stop control. Works continued where safe to do so, such as remote design work, procurement and site works on assets essential for safe operation of the railway. This included completing key objectives of replacing uninterruptible power supply equipment at two operational signal control centres ensuring constant power supply and station emergency lighting power supply equipment.

Approximately 40 per cent of works planned for 2020/21 have been rephased to be delivered within current financial constraints. A project extending the life of the main power control system to address obsolescence risks and combine three power control systems into one has continued largely to plan, achieving design and manufacturing phase milestones. Once completed, this system will monitor and safely operate traction, station, signalling and depot power supplies on all lines.

Cooling

We continue to upgrade the cooling of our power assets to support the new Four Lines Modernisation signalling system and good progress continues to be made.

Energy

The Solar programme has been paused due to funding constraints.

* The figures represent power and energy projects until 2023/24 and authority is sought in stages for future unapproved works

Rolling stock renewals

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2023/24	247	525	970	0

2020/21 strategic milestone RAG

We are modifying our passenger rolling stock to improve safety, accessibility, reliability and customer satisfaction, as well as to reduce maintenance costs. We are also modifying or replacing some of our existing engineering vehicles that support track maintenance and infrastructure renewals.

A Safe Stop was applied to all of the depot work on our passenger fleet projects. These are now operating in a COVID-19 Secure system of work.

We carried out the installation of the first Bakerloo four-car unit with LED saloon lighting. This unit has been in service since February 2020. We are now embarking on the fitment of the LED system to a three-car unit which will be in service by November 2020. The fleet will then start the installation throughout while incorporating the scope to deliver Rail vehicle accessibility requirements across the fleet.

On the Central line improvement programme, we are centralising our production process at Acton Rail Engineering Workshop.

We continue to work with our supply chain to enable the installation facilities for the improvement programme on the full fleet.

Construction work continues on a new train workshop building to support the Train Modification Unit at Acton Works Depot. The majority of civils works have been completed and the project has moved onto mechanical and electrical fitout works. Works to connect the new building to the depot's substation have also started.

In China, the first seven pre-production engineering wagons manufactured by CRRC have successfully passed static testing. Four of these wagons are on a ship bound for the UK with expected arrival early September. Upon arrival they will undergo dynamic testing off network

before being joined by the remaining three pre-production wagons on our network early 2021 for infrastructure testing. Once these wagons have been fully tested and approved, the remaining 66 wagons will be built and shipped. Minor delays were experienced due to coronavirus pandemic restrictions and local lockdowns in China, however, CRRC were quick to get back up and running and are working to mitigate these delays to ensure timely delivery.

The two Kirow cranes are now approved for use within Ruislip Depot supporting lifting and loading operations. The introduction of these cranes delivers safety and productivity benefits to the engineering operations in Ruislip Depot.

The mechanised renewals vehicle will improve the way track is renewed in the deep Tube sections of the Bakerloo, Central, Jubilee, Northern, Piccadilly and Victoria lines. The three allocated wagons have been fully overhauled and have returned to Ruislip Depot where the fitment of the track renewal equipment will begin shortly. This project was able to continue throughout the coronavirus pandemic period as the overhauler and component manufacturers were able to put safe and socially distanced practices in place quickly. They are due to be in service later this year.

The tender documentation for replacing our track recording vehicle, which records and monitors the alignment and condition of the track, is almost ready for market engagement.

The project to give train operators better control over unauthorised entry into the cab from the saloon has been progressing well. The contract was awarded and the first train installation on the Waterloo & City line has been done.



Piccadilly line signalling control systems have now been commissioned

Signalling and control

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2023/24	90	196	180	0

2020/21 strategic milestone RAG On Track

We are extending the life of our track-based signalling and control assets. This ensures they can continue to support a safe, reliable and maintainable service.

Siemens is continuing the design for the life extension of the Central line signalling and control systems. This project will maintain the reliability, availability and safety of the signalling assets and resolve obsolescence concerns. Once the design has been finalised, we will work with Siemens to deliver pilot sites and complete trials.

Works to replace the signalling system in Northumberland Park depot on the Victoria line has started, the concept design phase will be finalised in Quarter 2.

Completion dates for the signalling and control projects have been impacted by the coronavirus pandemic and the revised budget. For this reason, most works on these projects have been suspended.

We have finalised commissioning of all the new Piccadilly line signalling control systems at the control centre in west London. The migration of control has progressed well and is now complete.

Surface

Healthy Streets

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2021/22	669	811

2020/21 strategic milestone RAG

The Healthy Streets Approach prioritises health and wellbeing, with the overall objective of creating a transport system where everyone can travel safely by the healthiest and most resource-efficient means, specifically walking, cycling and public transport. It is central to achieving the 80 per cent mode share target in the Mayor’s Transport Strategy.

Following the decision to pause all construction work on our sites in March, there were some 20 schemes within Healthy Streets where work was safely stopped on site and resulted in traffic management barriers, and in some cases, temporary signals remaining on site.

While the projects were in Safe Stop, regular checks were undertaken by us and the supply chain to ensure the sites remained safe.

In late April, work on all but two projects were paused and most of the teams placed on furlough. The two exceptions were Old Street Roundabout and Highbury Corner Gyratory.

EFC (£m)	EFC movement post plan (£m)
811	0

The EFC is based on the July 2020 Programmes and Investment Committee paper. In 2020/21 the programme and project authority includes the delivery of the Streetspace for London plan and the restart of some projects in the first half of the year, following Safe Stop due to the coronavirus pandemic. The EFC also covers the continuation of Old Street Roundabout.

A further Programmes and Investment Committee paper is required to set out estimated project spend in the second half of the year and future years.

Design work for Old Street Roundabout continued due to the safety critical nature of the scheme and the cost to pause all works on the project was prohibitive. Construction was temporarily stopped but restarted in early June 2020. On Highbury Corner Gyratory the only remaining activity on the scheme was to install the Hostile Vehicle Mitigation measures so work on this continued due the safety and security implications. The works started in June 2020 and are planned to complete in late September 2020.

The previous budget for the first half of 2020/21 was £82m and the revised budget is £34m, £11.7m of which is for our Streetspace activities.

The Streetspace for London plan was a new scheme with a specific allocation of funds to deliver temporary measures as a response to the coronavirus pandemic.

Given the significant reduction in available budget, many projects continue to be paused, this includes most of the transformational schemes and the permanent cycling routes. Design activities have restarted on the Bus Priority programme, small safety related schemes and local junction improvements.

With the exception of Old Street Roundabout, Highbury Corner Gyratory, Bus Priority and the safety schemes, all other projects and programmes in the portfolio are undergoing a cost review to identify savings before they can restart activity.

Highbury Corner

The main highway and urban realm works were completed in Autumn 2019. During the Safe Stop period, design continued on the Hostile Vehicle Mitigation measures. Installation began on 22 June 2020 and are due to complete by late September.

Old Street Roundabout

Construction is progressing at Old Street Roundabout, where a new design will improve safety for cyclists and pedestrians with new and improved crossings, fully segregated cycle lanes and a new public space with an accessible main entrance to the station and shopping arcade.

Construction work was temporarily paused during lockdown, but the design activities continued and were not impacted by the pause. A soft restart began on 8 June to prepare the site ahead of the main works restarting two weeks later. An interim traffic switch is planned for October 2020, ahead of the main traffic switch in January 2021.

Due to the impacts of the coronavirus pandemic, and also several significant changes on the project, there has been a delay to the completion date of up to two years, and we are now forecasting an Autumn 2022 finish.

Cycleway 4

Work on the section between Tooley Street and Rotherhithe Roundabout restarted on 15 June and officially opened on 11 September. The remainder of the route is being considered under the Streetspace for London plan.

Cycleway 9

Work restarted on the Kew Bridge junction on 6 June and it officially opened on 3 September. The remainder of the route is being considered under the Streetspace for London plan.

Safer Junctions

Of the five remaining schemes that were paused on site due to the pandemic, we have returned to site and completed Camberwell town centre and Clapham Road/Union Road. We are on site and will complete the works in the first half of the year for Edgware Road/George Street and Britannia junction in Camden. The Edgware Road corridor and Kingsland Road/Balls Pond Road have been prioritised for completion in late October.

Streetspace for London plan

When the coronavirus pandemic took hold earlier this year, it was clear that we and boroughs needed to act quickly to adapt London's streets and public transport system to respond to the challenge London faced. In May 2020 the DfT issued statutory guidance urging local authorities to reallocate road space to people walking and cycling, both to encourage active travel and to enable social distancing during restart.

As a result, the Streetspace for London plan was formed, providing a strategic framework to rapidly respond to the coronavirus pandemic and subsequent recovery following the end of lockdown by creating more space for people to walk and cycle safely. Millions more journeys will need to be made by walking and cycling while capacity on public transport is constrained by social distancing needs.

As part of this plan we are transforming London's main roads and funding boroughs to repurpose general traffic lanes and parking spaces for temporary cycle ways and wider footways. Types of schemes cover:

- The introduction of strategic corridors for walking, cycling and bus journeys on our road network
- Town centre, station and interchange schemes on our and borough roads to increase space for pedestrians
- Low Traffic Neighbourhoods and School Streets on borough roads to open up residential streets for people, helping create a safer and more pleasant environment for walking and cycling and reduce car traffic



Encouraging more Londoners to walk and cycle helps social distancing on our network

By delivering this programme, it will make it easier and safer for people to keep up social distancing and help people walk and cycle more often. The wider mental and physical health benefits of increased walking and cycling are critical in responding to the pandemic. This includes helping Londoners stay healthy, therefore reducing their chance of developing more severe coronavirus symptoms, as well as reducing the burden on the NHS from non-coronavirus related consultations and admissions, such as those relating to the health impacts of poor air quality and traffic collisions. Measures are also intended to discourage a sharp increase in car use; if people switch even a fraction of their previous journeys to cars, essential deliveries and emergency services will be gridlocked.

Of the DfT settlement, £55m in funding was allocated in May 2020 to fund the programme, with £45m assigned to borough-led schemes and £10m for ours. Guidance was issued to boroughs and published on our website to enable local authorities to bid for scheme funding, with us managing the assessment process on the DfT's behalf. At the end of July, boroughs had been assigned more than £30m to deliver 860 Streetspace schemes by mid-October 2020, with a further £13m assigned to borough sunk costs.

Progress continues to reflect the rapid requirement for roll out of schemes to support London's recovery from the pandemic. By late August more than 220 borough schemes had been completed, with many more in construction. More than 27km of new or upgraded cycle infrastructure had been completed, including segregated routes along Park Lane and on CS8 between Chelsea Bridge and Lambeth Bridge.

On our road network, more than 16,500 square metres of highway space had been reallocated to pedestrians, reducing overcrowding at key locations including Brixton town centre, Camden High Street and Waterloo Road. Pedestrians also benefit from more than 2,100 signal timing changes, providing more than 240 hours of additional green man crossing time to pedestrians each day.

Delivery of the programme continues at pace, with targets for the end of the first half of the year on track. This includes complementary schemes such as installation of new cycle parking on the TfL Road Network, eight new Cycle Hire docking stations and the conversion of 77km of bus lanes on the TfL Road Network to operate 24/7 Monday to Sunday, improving bus reliability and providing improved provision for cyclists.

Direct Vision Standard

The Direct Vision Standard (DVS) was created to improve the safety of all road users, particularly the most vulnerable such as pedestrians, cyclists and motorcyclists, by assessing vehicle blind spots. The DVS assesses and rates how much a driver can see directly from their heavy goods vehicle (HGV) cab in relation to other road users and assigns a star rating from zero (poor) to five (excellent). Any vehicle rated zero star will be required to fit additional safety equipment to increase the vehicle's safety to meet the minimum one-star requirement. Upon application, an HGV Safety Permit recording the vehicle's star rating or safe system is issued.

DVS launched in October 2019 on a voluntary basis, with a 12-month pre-compliance period within which hauliers will be able to apply for a permit. To date more than 94,000 permit applications have been received and 31,500 granted. Enforcement of the scheme was due to begin in October 2020; however, this date has been revised to 1 March 2021 in alignment with the LEZ date to support the freight industry in its recovery from the coronavirus pandemic and during the pandemic.

Preparation of the core systems for the launch of the enforcement element of the scheme are on track against a re-planned schedule.

On 2 March, we launched a new 20mph speed limit on our roads in central London, which is a key role in the Mayor's Vision Zero ambition to eliminate death and serious injury from London's transport network. The new speed limits are being enforced across all our roads within the Congestion Charging zone, including Millbank, Victoria Embankment and Borough High Street, following strong public support for the proposals.

To support these speed reductions, we have recalibrated speed cameras in central London and are using mobile speed cameras to ensure drivers comply. A marketing and communications campaign was launched to announce the speed limit change and educate drivers on its purpose. This is closely aligned with our current 'Watch your speed' campaign. More than 50km of our road network is now subject to a 20mph speed limit.

Phase two of this work has been paused, owing to funding constraints. This phase would have introduced lower speed limits on a further 140km of our roads in inner and outer London. However, where opportunities exist, we are introducing 20mph speed limits into social distancing schemes being delivered under the Streetspace for London plan.

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2023/24	274	510

2020/21 strategic milestone RAG On Track

The Air quality programme reduces the impact of transport on air quality and climate change by targeting vehicles in our contracted and regulated fleets, and all vehicles driving in London.

In response to the coronavirus pandemic the Congestion Charge, LEZ and ULEZ Schemes were suspended between 23 March and 18 May 2020. In addition, the new LEZ standards and charges, and enforcement of the DVS have both been postponed from October 2020 until March 2021.

On 15 May 2020, the Mayor published details of the Streetspace for London plan, to support this, he also announced the intention to implement temporary changes to the conditions and scope of the Congestion Charge scheme.

Accordingly, in May we re-tasked the internal and supplier delivery teams and implemented temporary changes to the charge value, charging hours and days for the Congestion Charge on 22 June 2020.

Together these changes have entailed re-prioritisation and re-planning of projects within the Air quality programme. The ULEZ Expansion date of October 2021 is unchanged.

EFC (£m)	EFC movement post plan (£m)
628	(41)

The EFC increase is mainly due to broadened scope for Bus Electrification to support Bus Fleet Opportunity Charging (£5m) and Grid to Gate (£42m), which aims to support zero emission bus fleet, and will enable power supply at bus garages to allow for overnight charging. Following the changes made to the operational hours of the Congestion Charge Scheme, expenditure has increased by a net (£12m).

In addition savings have achieved across the portfolio due to risk released for SCR Retrofit, and other projects, noted reduction for DVS £2m, and LEZ Stronger £4m, as well as an increased over programming £3m. The impact of the coronavirus pandemic has also resulted in deferred activities of £6m, which will be reviewed as part of the 2020 Business Plan.

The EFC reflects the revised budget to 2023/24.

Air Quality Management (ULEZ Expansion, LEZ and DVS)

All office-based work on the Air Quality Management programme has continued throughout the coronavirus pandemic and remote working for the project team has been implemented.

All on-site workstreams, for example, camera and signage survey work, that were paused as part of our Safe Stop in March were restarted in June 2020 with appropriate social distancing and safety measures in place.

Following the resequencing of activities and development of a revised plan, the delivery of LEZ, DVS and ULEZ Expansion to the current launch dates remains feasible.

ULEZ

On 8 April 2019 we successfully introduced the new ULEZ in central London. It enforces the world's toughest vehicle emission standard and is the first to operate 24/7. The ULEZ replaced the T-Charge and operates in the same area of central London as the Congestion Charge. The ULEZ expansion project will extend the central London ULEZ, up to the North and South Circular Roads. The project is now progressing with key activities including:

- Implementation of the cloud platform which will enable the migration of the back-office systems to the cloud to manage the larger volumes of data

- Preparation of the individual back office system elements for the phased migration to the cloud
- Design and development of the upgraded data warehouse with Siemens to house the increased volumes of camera images
- Detailed design development for signage and camera placement
- Obtaining required consents and approvals from relevant boroughs

Low Emission Zone 2020

These will strengthen the emission requirements for the existing Low Emission Zone that applies to heavy vehicles. The emissions standards for lorries, vans and other specialist HGVs of more than 3.5 tonnes, as well as buses, minibuses and coaches more than five tonnes, will change from Euro IV to the more stringent Euro VI. Owners of vehicles that do not meet the tougher emissions standards will need to pay a daily charge to drive within the LEZ.

In order to support businesses in their recovery from the impacts of the coronavirus pandemic, and to allow them more time to prepare, the start date for the enforcement of the new standards has been revised from October 2020 to March 2021 with the current LEZ charges and standards operating until then. This was to support the freight industry during the coronavirus pandemic and its recovery.

To ensure a successful launch, the business and enforcement systems, as well as the website, will be updated. These process changes will be supported by a comprehensive communications campaign.

Fleet compliance

To help meet the Mayor's air quality objectives in 2020, we are upgrading the entire bus fleet to meet Euro VI emissions. This includes retrofits of more than 4,000 midlife buses, of which more than 3,850 have already been completed.

Responding to the coronavirus pandemic, the Retrofit programme came to a Safe Stop in March. Work restarted in July with appropriate safety measures in place and is on track to complete by the end of 2020.

Ultra-low emission vehicles – rapid charging infrastructure

To support the growing number of zero emission capable taxis and the wider take-up of electric vehicles, we are spending £18m and working with the London boroughs and others to build a network of rapid charge points across London.

In response to the coronavirus pandemic, the Rapid Charging Infrastructure project came to a Safe Stop in March. Work restarted in July with appropriate safety measures in place and is on track against a revised schedule to achieve our target of 300 rapid charge points installed by the end of December 2020.

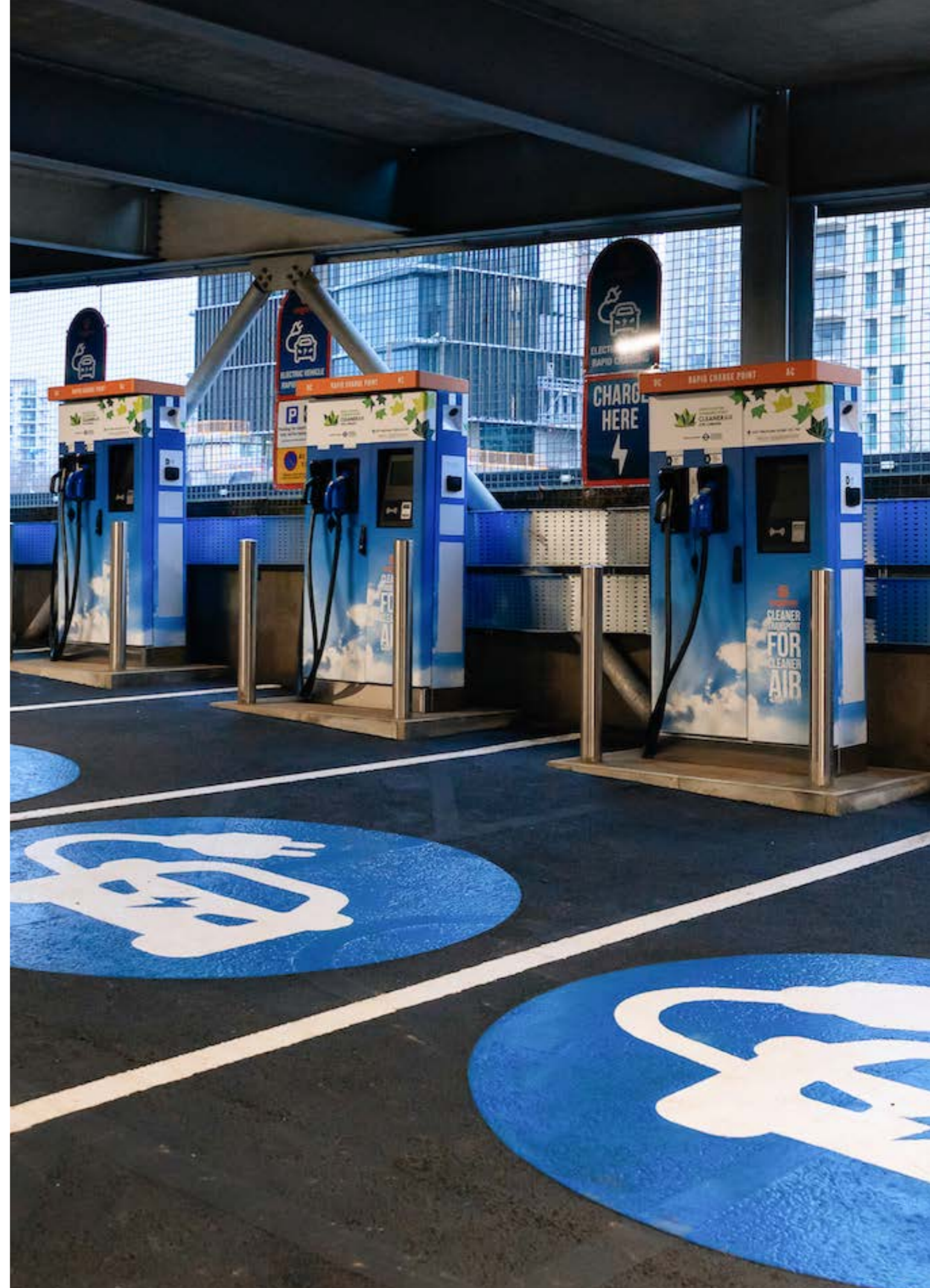
Mayor's Air Quality Fund

The Mayor's Air Quality Fund is providing £22m of investment over 10 years to support London Borough projects to improve air quality. The fund has supported innovative Low Emission Neighbourhoods, which are providing a targeted package of measures in nine pollution hotspots across London. The Low Emission Neighbourhood in Shoreditch contributed to an estimated 16 per cent reduction of NO₂ in the area. Other highlights from the fund include the provision of more than 20 new clean air routes, 300 electric vehicle chargers, two kilometres of new or improved cycle routes, and the delivery of innovative projects to cut construction machinery pollution and supporting more than 250 car free schemes and events.

Go Ultra Low City Scheme

The Go Ultra Low City Scheme (GULCS) is a joint venture with the GLA and boroughs project aiming to deliver more than 2,150 on-street electric charge points for London's residents and car club vehicles. In response to the coronavirus pandemic, installation works came to a Safe Stop in April. Work has now restarted, with the delivery deadline extended from December 2020 to the end of the current financial year.

Additionally, a joint bid for the London boroughs has been submitted to OLEV for a new On-street Residential Chargepoint Scheme – where further residential charging infrastructure can be delivered to encourage and support the growing demand for electric vehicles. Subject to the outcome of the bid, boroughs would combine any On-street Residential Chargepoint Scheme funding with their GULCS allocations, to ensure the procurement and delivery process is as efficient as possible.



We are expanding the number of rapid charge points available

Asset investment

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2021/22	341	618

2020/21 strategic milestone RAG

We replace, refurbish or reconstruct our surface assets to keep them in a safe condition through prioritised and planned works. This programme maintains and lengthens the working life of a wide range of assets, including carriageway, footway, lighting, drainage, bridges, tunnels, traffic signals, bus stations and river assets.

At the time of the coronavirus lockdown the Assets portfolio was working hard to complete its annualised programme of smaller Asset Capital Programme (ACP) on various asset groups such as carriageways and bus stations. At the same time, it was also progressing site works on key larger schemes such as the fire systems upgrade to the Victoria Coach Station (VCS) and the works at Hammersmith Bridge in conjunction with Hammersmith and Fulham council. Additionally, design and planning works were progressing on a range of schemes such as the Major Asset Renewal Programme A40 Westway expansion joints replacement project and the Major Asset Renewal Programme Vauxhall Bridge topside works.

EFC (£m)	EFC movement post plan (£m)
646	(33)

The EFC covers 2021/22 to provide a direct comparison to the programme as originally approved in 2017/18.

The majority of the increase in EFC compared to the plan is £24m additional funding for Hammersmith Bridge to start work on stabilisation work and construct a temporary walking and cycling bridge. This is included as a funding request to Government to allow the London Borough of Hammersmith and Fulham to start this work but, as with all our major asset renewals, longer-term Government funding is required to let the required contracts and complete the work.

The Safe Stop of our capital schemes due to the coronavirus pandemic meant that the two-year pause of proactive capital renewals was effectively extended by four months. We have continued to prioritise critical renewals and have increased investment in 2021/22 to improve the state of good repair of our assets which has deteriorated during this pause.

As part of the Safe Stop review it was agreed to stop the ACP works on site but continue high priority safety critical projects to maintain network safety and resilience. Projects that continued included the site works at VCS and Hammersmith Bridge. The methods of working on these schemes were changed, however, to ensure that the risks to the operatives of contracting COVID-19 were minimised. The preparatory works for the A40 Westway project also continued and a tender for its concept design was completed over the summer. Design work also continued on other high priority projects including Rotherhithe Tunnel and Hostile Vehicle Mitigation measures on Thames river bridges.

Due to funding constraints, some work schemes have been scaled back. However, by working closely with the supply chain works are making good progress and the schemes set out in the revised budget for the first half of the year, will be delivered as planned.

For the larger schemes such as VCS fire systems progress on site has been good over the summer despite the imposition of coronavirus safety restrictions on working practices and this project is on track to complete ahead of the December deadline imposed by the required to meet the London Fire Brigade enforcement notice. Works on Hammersmith Bridge, which is owned by the London Borough of Hammersmith and Fulham, also continued successfully through the summer and the removal of the cast iron casings to two of the pedestals completed as planned. The tender for the A40 Westway scheme was successfully completed and the winning contractor has begun concept design work. Similarly, the build phase of the Vauxhall Bridge contract was agreed, and the works started on site in August as planned. Feasibility work to replace the Hostile Vehicle Mitigation on the Thames River Bridges has been completed and single options discussed with key stakeholders. For the ACP works the revised programmes have been agreed and works are currently on track with carriageway and structures schemes accounting for the bulk of the revised budget for the first half of the year.

Public transport

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2022/23	278	387

2020/21 strategic milestone RAG On Track

The public transport programme oversees London Buses, London Overground, the DLR, London Trams, Emirates Air Line, Santander Cycles and London River Services.

London Overground

The start of Quarter I saw all the enhancement works on London Overground brought to a Safe Stop in accordance with government guidance and several project staff being placed on furlough.

At White Hart Lane works to progress handover documentation continued while the construction activities were brought to a Safe Stop. Works were safely restarted in late June to complete the second phase of works mainly involving completion of urban realm, telecoms and safe strip out of the former station building. The pause to works has pushed the completion of site works from May until September 2020.

Works at West Hampstead were safely restarted in early July. The only site works remaining were minor snagging works which have been completed.

Design work for an increase of services to 18 trains per hour on this part of the London Overground was completed, however, this project has been deferred as a result of the revised budget. The completion of this work will be reconsidered in Quarter 2 2021/22.

EFC (£m)	EFC movement post plan (£m)
382	5

The EFC decrease is due to the impact of the coronavirus pandemic reflected in the revised budget. Delivery has been deferred for projects reducing spend for Trams, including the Croydon capacity upgrade and Trams overhauls. The next stages for Bus Safety Standards, will be reviewed in the next Business Plan.

Lower passengers journeys on the DLR between April and July, reduced our liability for the City Greenwich Lewisham Rail Link by £11m, in addition to savings across the portfolio. Reduced spend is offset by activity to help recovery from the coronavirus pandemic including Custom House station and increasing Cycle Hire docking stations.

The reduced spend has been offset by the inclusion of DfT funded accelerated customer enhancement schemes (£2m) included for Hackney Central and Imperial Wharf. The EFC reflects the revised budget up to 2022/23.

We have entered into a Grant Determination Agreement with the Ministry of Housing, Communities and Local Government and the GLA to deliver infrastructure improvements that support housing growth along this part of the London Overground. The schemes delivered as part of this agreement will be a redevelopment of Surrey Quays station, a new station at Surrey Canal Road and infrastructure changes to allow 20 trains per hour to run. These projects will be completed by late 2024. The procurement of the next stage of design has now completed, however, has suffered some delay due to key staff being on furlough.

We are continuing to scope up the next phase of works at Seven Sisters for an Access for All scheme. This is funded from the DfT's Access for All programme in conjunction with Network Rail.

We are currently procuring a framework for the delivery of future works. Supplier selection questionnaires have been received and at present time are under review. The market has shown a healthy interest in bidding to be on the framework.

The roll out of the class 710 units on the West Anglia route has continued despite the restrictions caused by the coronavirus pandemic. Twenty-two new units are now in passenger service.

DLR

The start of Quarter I saw the majority of DLR Renewals portfolio brought to a Safe Stop to align with the Government request to lockdown. Active sites were stopped and secured. The construction team then started weekly tours of the sites to make sure they remained safe and secure.

Mid Quarter I, most of the team was placed on furlough and those who remained worked on projects deemed as safety critical. If these projects stopped, they would have impacted the operational safety of the railway.

Measures were put in place before critical site works could restart. Our contractors re-evaluated their safety assessments to incorporate measures to mitigate against the coronavirus pandemic. Only when these revised mitigations were peer reviewed and approved was work allowed to resume.

Signalling upgrades of the Vehicle Control Centre Borders and the installation of signalling hardware saw key designs being approved and physical works started during the last week of June.

The key High Voltage Project replacement of the East Route Ring Main was sent out to tender, with limited access to the railway we undertook virtual site tours to provide details to the tenderers. Other associated projects (Replacement Vacuum Medium Switchgear and Hawker Sidley Nuclear Power Circuit Breakers) were made ready to be sent out to tender in Quarter 2.

Station works at Custom House continued throughout the lockdown period, using a COVID-19 Safe System of work. We and the Government saw maintaining access to this station, as the main access to NHS Nightingale Hospital London, as critical to support the movement of critical key workers.

Several high priority projects also restarted back on site during our East Route Closure on 20-22 June). Depot Conductor Rail and Re-Railing at Canning Town were completed successfully.

The Re-Rail site saw the introduction of innovative technology which assisted staff in maintaining 2m safe distancing. The Personal Distance System used at hospitals, made sure staff wearing an alarm belt were warned (with a bleep), if they were closer than 2m from other colleagues. The technology has moved on with the system now small enough to sit inside a normal-sized pocket.

The GLA funded Royal Docks Stations Programme was unaffected by the coronavirus pandemic because the six stations were in the early design phase. The programme is on track to meet the milestones of completing concept design and entering the construction phase for the first two stations in 2021.

London Trams

As part of our commitment to making the tram network safer following the tragedy at Sandilands in 2016, we continue to address the recommendations from the Rail Accident Investigation Branch. We have completed several initiatives including a new emergency lighting system on each tram and are currently in the final delivery phases of the physical prevention of over-speeding automatic braking system.

Our renewals programme of works continues across seven asset groups including fleet, power, civils, systems and permanent way infrastructure.

Planning has progressed for the Reeves Corner and Love Lane track renewals planned to begin in August 2020.

The Oaks Road switchgear replacement works has been completed and the substation has been commissioned.

The Systems Integration Project has been completed brought in to use, and the handover file is being finalised.

A contract has been awarded for the CR4000 Cab Cooling works with the fitment of the first-in-class installation planned for August 2020. A revised proposal was received for the blind-spot CCTV workstream on the Stadler Equipment Overhaul project and contract award is now planned for August 2020.



We are improving the capacity on the DLR

Surface technology

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2023/24	15	79

2020/21 strategic milestone RAG

This is a new programme responsible for overseeing strategically important technology projects within our five-year business plan and, from April 2019, to provide a structure for all future technology projects being delivered by surface transport.

Surface Intelligent Transport Systems (SITS)

We are leading the way in delivering innovative new road traffic management systems to make journeys on foot, bike and bus, as well as essential emergency services and freight trips, as efficient as possible. Delivery of elements of the SITS programme where we have contractual commitments has continued without negative impact from the coronavirus pandemic, with development teams able to work remotely without significant disruption. These elements include the Real Time Optimiser system which will help us better manage the flow of people on London's road network by controlling the phasing of traffic signals using pre-planned timetables, manual interventions and optimisation techniques. In Quarter I, we agreed a plan to complete this work with Siemens following a detailed review of requirements. Following this, in August, we completed formal witness testing of the current phase of Real Time Optimiser system development.

EFC (£m)	EFC movement post plan (£m)
124	10

The EFC is broadly in line with the 2019 Business Plan. The EFC change since Quarter 4 is mainly over programming driven – a higher percentage has been applied.

Surface technology is a relatively new portfolio and its first paper was submitted to the Programmes and Investment

Committee in March 2019. The Programme and Project Authority is therefore below EFC as the portfolio is only part authorised.

Our work with Sopra Steria to design, develop and implement a new incident management system has also continued. This will enable us to increase the speed at which we detect and respond to incidents on the road network.

These enhanced systems require better data than is currently available, and an improved data storage hub. In August 2020, we awarded a contract to supply vehicle journey time data to INRIX and completed a tactical roadmap to set out our plan to fulfil SITS data requirements, including the use of video analytics to better understand vehicle and cyclist movements in real-time. Improvements to our data storage hub have supported continuation of our highways modelling activities following the coronavirus pandemic. Previously, it was not possible to access historic traffic signal data older than three months, but in February 2020, the first version of the new storage hub removed this constraint. This data has proven essential for validating traffic models of road conditions before the coronavirus pandemic, ensuring new proposals can be assessed against the conditions as they were before the pandemic.

Work on the predictive element of SITS was paused, as there are currently no contractual commitments for this.

Operational safety and compliance

We are consolidating our approach to compliance and enforcement so we can support a more versatile compliance, policing and on-street services operation. This will help people feel safe and secure when travelling in London, supporting reliable journeys and generating efficiency savings.

This area includes procuring systems and services to support our licensing of taxi and private hire vehicles, drivers and operators. We will ensure business continuity is maintained, protecting customers and ensuring vehicles are safe, accessible and meet strict environmental standards.

The new system aims to provide a more efficient service to our Taxi and Private Hire customers. We have continued the procurement process to secure a supplier for this operationally critical system, with minimal negative impact due to the coronavirus pandemic. In July, we selected suppliers to proceed to the next dialogue-based stage, with the project on track to award the contract in Spring 2021.

This programme also includes proposals to introduce body worn video cameras for more colleagues in front line roles. A successful technical test of key infrastructure was carried out at Stratford, which has informed key areas such as back office technical design for the camera system and uniform design. Footage captured during this trial has already been used to support successful prosecution of those who act aggressively towards our people.

Public transport technology

We are maintaining and developing technology to operate our public transport networks and improve customer experience. This includes upgrading the technology systems that underpin the bus network such as improving the iBus system which is used to provide real-time information on bus locations. It also includes improvements to communications technology used on the Emirates Air Line, as well as enhancing the booking and scheduling system for Dial-a-Ride. This will allow us to book and deliver trips more efficiently.

Some projects in the area were paused for two to three months while an emergency budget was negotiated and have since remobilised. This resulted in a delay to delivery, while slowing down the rate of spend in this area. Activities following remobilisation have largely focused on re-planning; key progress highlights include progress towards finalising tender documentation to re-procure an upgraded booking and scheduling system for Dial-a-Ride and undertaking options analysis to improve connectivity to Emirates Air Line cabins to support passenger communications systems.



Body-worn cameras are being introduced for front-line staff on our network

Other

Technology and data

Forecast completion year	Spend to date (£m)	Spend authority (£m)
2020/21	137	275

EFC (£m)	EFC movement post plan (£m)
281	(6)

2020/21 strategic milestone RAG

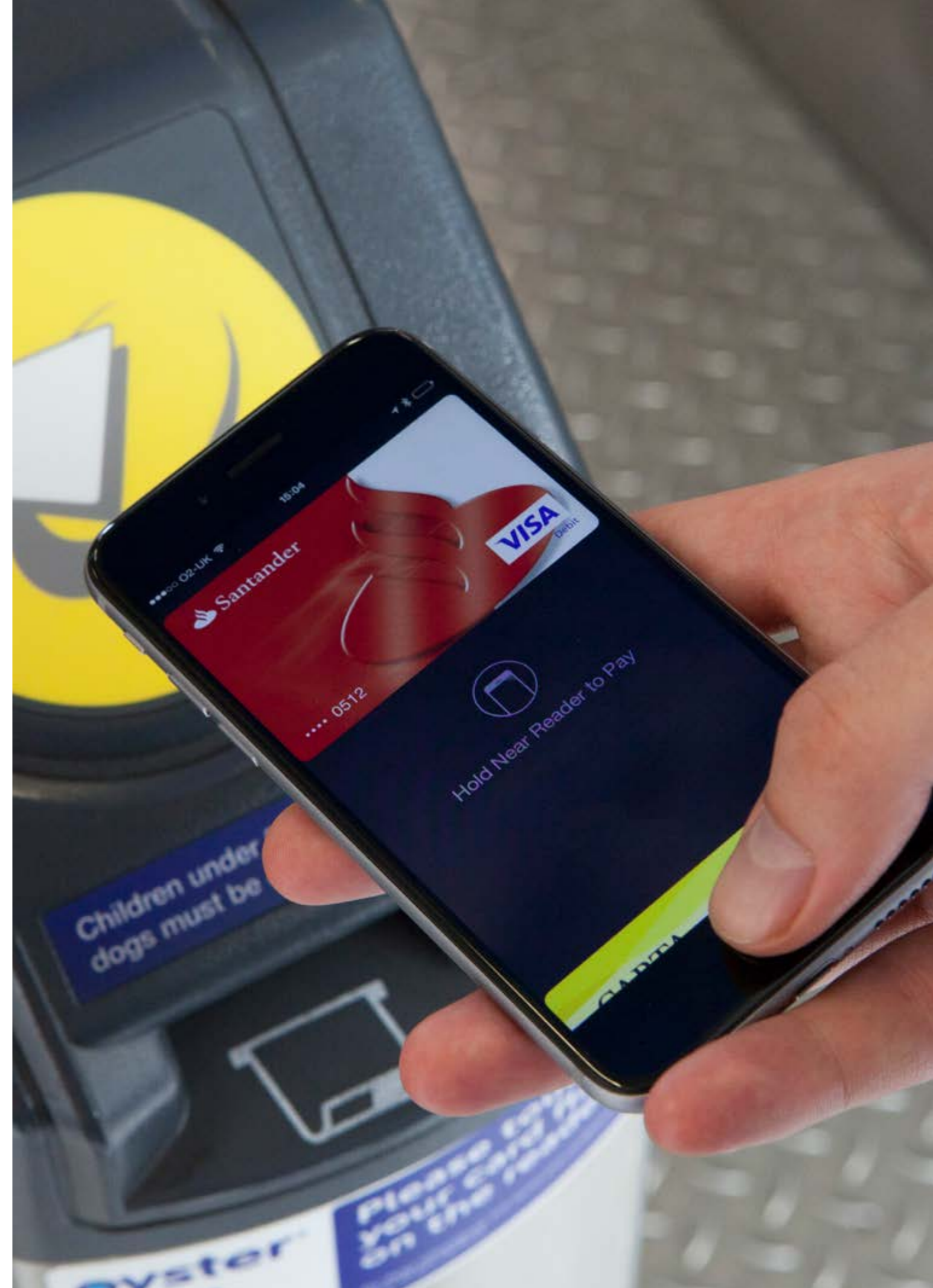
The Technology and data programme provide the core infrastructure, services and technology that enable us to achieve our strategic priorities.

Payments

On 20 April, we introduced daily and weekly capping for customers using contactless pay as you go on train services to Reading, Luton Airport Parkway and Welwyn Garden City. This has been a complex project involving changes to how contactless fares are calculated and significant changes to the systems which support revenue allocation. The complexity of the requirements from the Train Operating Companies, meant that it was not possible to deliver this at the same time as pay as you go was introduced in January. However, in the interim, our Data and Analytics team has been providing refunds to customers who spent more than the daily cap.

On 17 May we successfully delivered the fares revision while maintaining safe working practices as a result of the coronavirus pandemic movement restrictions. This meant a reduced scope of the fares revision by removing non-critical items. The main changes introduced were in support of new operational arrangements at Paddington station introduced by Great Western and Heathrow Express.

Values shown are for Tech and data funded projects only and exclude Emergency Service Network, Public Cellular Network, Telecoms Commercialisation Project and telecomms projects. Authority and EFC shown are for financial years 2018/19 to 2021/22. Spend Authority includes additional Programme and Project Authority approved by the Programmes and Investment Committee on 6 March 2020.



Contactless payment options are being introduced on more services

As part of the funding settlement with Government and to reduce demand from non-essential travel, on 15 June, we introduced changes to the 60+ and Freedom Pass concessions to prevent their use before 09.00 on weekdays.

Evergreen Programme

The Evergreen Programme is aimed at renewing more than 80 per cent of our desktop PCs and moving all users to Windows 10/Office 365. By the end of July 2020 30,000 of 32,700 users had been moved to Windows 10 /Office 365 and 40,000 of 44,000 email boxes to Exchange Online providing a richer user experience with access from any device at any location. Migrations are expected to be completed by September 2020

The Smart Working Programme closed at the end of March, having achieved all its objectives including allowing remote working for a large part of our non-operational workforce.

The achievements of the Evergreen and Smart Working Programmes proved to be critical enablers for us to successfully move up to 15,000 staff to work from home in just a few days at the start of the coronavirus pandemic lockdown period.

Content and collaboration

Microsoft SharePoint is one of our main departmental file sharing applications. However, three older versions exist that need to be consolidated into a single up to date version, SharePoint Online, which is part of the Office 365 suite. Only the six most complicated 2010 sites remain, with migration planning currently under way.

Livelihood is a key enterprise document management tool, largely used for engineering documentation. The current version is not supported and needs to be upgraded to run under Windows 10. Final testing of the new application is underway and implementation is planned to align with the next Windows 10 rollout.

The new Intranet portal called Platform was successfully launched at the start of July 2020. This consolidates three legacy intranets into one modern solution.

Hosting Data Centre Rationalisation and Cloud Migration

Hosting continues to develop a hybrid operating model in which we have extended our data centre capabilities into the public cloud through Amazon Web Services and Azure. The expanded capabilities to deliver stronger governance, operational controls and cost transparency to yield additional efficiencies has been delivered in Azure and 98 per cent complete in Amazon Web Services.

Forty per cent of the Compute hosting platforms have now been refreshed and data migrated off legacy storage platforms which have now been decommissioned. This has mitigated some of our security vulnerabilities and ensure we are operating on supported platforms.

Decommissioning of the Ashfield House data centre is underway, all apart from one service has now been migrated into our strategic data centre. A new Universal Licence Agreement was negotiated for our Virtualisation services and went live in June. This delivered £1.2m operational savings.

Networks

Following the introduction of Safe Stop, all works on the delivery of the London Underground Connect radio system upgrade ceased until an exemption was approved in June. Work has now restarted and the new core site equipment has been fully commissioned. Activity continues to deploy new control room dispatchers and re-configure the base stations prior to the system software being updated.

We have continued to deliver infrastructure to support the Home Office's new national Emergency Service Network communications system and have installed 380km of tunnel fibre (90 per cent), pulled 395km of the tunnel leaky feeder (95 per cent), and fixed 263km of this leaky feeder (62 per cent) into its final position. We have completed about 40 per cent of the required station cabling works, focusing on 59 stations (of 127).

Following the successful launch of the 4G Pilot on the Jubilee line in March, we have engaged Capita to design an extension to the Pilot to add five additional Jubilee line stations and associated tunnel sections – this will provide passengers with 4G connectivity throughout the entire Jubilee line (both in tunnels and on platform areas).

Subject to available funding the additional sections would be energised by the end of Quarter 2 2021. In addition to this, funding has been requested for further enabling works for the wider Public Cellular Network service across the estate including a second leaky feeder on the Jubilee and Victoria lines, enabling works in six stations and 30 station designs. The investment will largely be recoverable via the telecoms concession at the point that commercial mobile services are established.

Our project to secure a partner to commercialise our telecoms assets continues. Updated tender documentation was issued on 3 June and two updated tender responses were received on 1 July. These responses are now being evaluated.

Technical Refresh and technical service operation

In June 2020 the core support service contracted out to Computacenter for IT Service Desk and Support went live.

The contract for providing best-value off-the-shelf IT hardware and software was awarded to Computacenter in April 2020 following a tender process. The contract went live in May 2020.

Enterprise resource planning

The SAP Enterprise Resource Planning team successfully provided improvements to transactional processing in Accounts Payable. These optimisations have been prioritised as they supported home working during the recent challenges caused by the coronavirus pandemic.

The SAP Hosting Project has completed the design phase and initial migration of the Development environment to Cloud has started. This project will migrate SAP on to the Amazon Public Cloud to increase SAP performance.

We have implemented the anonymised CV service, so that when shortlisting candidates during recruitment campaigns, we are actively minimising the impact of any unconscious bias.

Contact Centre Operation

During this period, the focus has been on the retendering of the contact handling work for Oyster.

The new contract with Eckoh to provide telephony services for our customer helplines went live in July.

Data Analytics

During Quarter I and with the impact of the coronavirus pandemic, there has been a significant increase in demand, internally and externally, for accurate information to help understand customer demand and insight into journeys being made across our network.

To support this, we have brought forward the Journeys and Demand initiative, which in Quarter I has seen the development of London Underground customer demand reports for use by the wider business, some of which automate previously manual processes to improve efficiency and consistency.

Alongside this need for customer demand information, we are modernising the 'Origin Destination Interchange' product: this is a complex tool that infers bus alighting and passenger loads, and enables crucial activities across transport planning, payments, and analytical teams. The project completed the proof of concept phase and moved into development.

New enhanced 'Artificial Intelligence' sensors have been installed across Central London which count the flow of traffic/pedestrians/bikes through junctions. We are loading live data from these.

Finally, we have continued to deliver the next increments to the Wi-Fi product which has given the following enhancements:

Passenger Route Choice – Which went live with our second feature for our advertising partner (Global) which will help them to understand what routes could have been taken between any given stations, on a given day and helps improve their advertising campaign reach.

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2024/25	0	157	157	(1)

2020/21 strategic milestone RAG

This programme is dedicated to the third pillar of the Mayor’s Transport Strategy on using transport to unlock new jobs and homes. The programme allocates funding to support multi-modal and cross-portfolio transport schemes where there is a specific transport constraint that is holding back economic and residential development and supports regeneration opportunities in some of London’s key growth areas.

Existing Growth Fund Programme

The Growth Fund contributes to 16 schemes that will support more than 30,500 new homes and approximately 24,700 new jobs. Recently completed schemes include the transformation of the northern roundabout at Elephant and Castle and Ilford station.

The construction and development of most Growth Fund schemes has been paused over the last financial quarter due to the coronavirus pandemic and lockdown restrictions. Progress has been made in developing scheme details and negotiating third party funding for several schemes in the programme which are in the feasibility and design stages. Our investment in the transport infrastructure continues to be supported by financial contributions from developers as well as other sources, including the GLA with the programme unlocking more than £122m of third-party funding.

Progression has been made in upgrading and developing stations such as supporting the submission of a planning application for the Walthamstow Central scheme, and further development of Woolwich (Elizabeth line) and Tottenham Hale stations with all of these improvements supporting and unlocking new housing developments and aiding local economic recovery. Our investment in the transport infrastructure has been supported by financial contributions from developers as well as other sources, including the GLA.

Our latest budget classifies all Growth Fund schemes as ‘contingent on additional funding’. This means that, although all the following projects already have a strong commitment and a significant degree of third-party funding has been secured for their delivery, a further commitment by Government or other sources is needed to complete the funding package for each of them.

These are:

- An upgrade at Colindale station in the first phase of a development programme to bring 10,000 new homes to the area. The scheme now has confirmation that the Secretary of State has accepted the CPO and delegated the decision making to an Inspector with a Public Inquiry expected to be held later this year
- An upgrade at Walthamstow Central station, with improved entrances and step-free access, to provide additional capacity to support 2,000 new homes and 1,000 new jobs in Walthamstow town centre. A new planning application has been submitted and the project team is now planning out activities for the next stage, including negotiations and design completion
- Pontoon Dock – station enhancement works to improve vertical circulation and directly unlocks 5,000 homes with £7.6m of developer contributions. The scheme is currently being redesigned and a new planning application will be submitted by the developer, this has caused changes to the original programme and the funding profile is likely to change as a result
- Tolworth – Highway enhancements to improve capacity and unlock the delivery of more than 2,500 new homes
- Catford – the scheme proposes the removal of Catford gyratory and road-space relocation to enhance town centre place and travel conditions and maximise new housing delivery and associated growth (3,000 new homes and 1,000 new local jobs supported)
- Erith – This scheme proposes significant improvements to public realm in Erith Town Centre and improved pedestrian access to Erith station. There are plans to develop at least 1,000 new homes in the town centre which will be supported by the improvements
- Thameside West DLR station – A new DLR station, Thames Wharf, to support the Thameside West development, which is set to deliver around 7,000 new homes

We are currently working with the GLA, DfT and Ministry of Housing, Communities and Local Government to obtain funding certainty for some of the current Growth Fund schemes and to explore other funding options.

Other Growth Fund schemes:

Sutton Link

This scheme entails the extension of the London Trams network from Wimbledon to Sutton town centre, via Morden and Rosehill. A detailed option selection process, including a public consultation on a shortlist of choices has been completed thus far. This project has been paused.



Stations on the Elizabeth line will be step free by design

Elizabeth line

On-network stations improvement programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2020	90	94	95	0

2020/21 strategic milestone RAG

This programme focuses on 22 existing stations, ensuring improved customer experience and step-free access, and a consistent station environment across the Elizabeth line.

Work on Great Eastern step-free schemes at Maryland, Manor Park and Seven Kings was completed in February 2019. A long-term dispute between the main contractor and subcontractor has delayed the formal handover of these assets to Rail for London Infrastructure. However, the dispute now looks to have been resolved and works on handover will restart with a view to completing in October 2020.

On the Great Western section, lift schemes at Hanwell, Iver, Langley and Taplow were completed between December 2019 and March 2020 – just ahead of the Safe Stop. Therefore the coronavirus pandemic’s impact on the project has been minimal as all that remains are minor outstanding works and snags.

Since March attention has been on completing the paperwork required to hand the new assets to the asset manager Network Rail which will assume long-term responsibility in line with other station

assets on the Great Western section with all project teams working remotely. The remaining snags/outstanding works are being completed with site teams adhering to social distancing guidelines.

MTR Elizabeth line’s station refurbishment programme also came to a Safe Stop in March. The two active projects at Langley and Hanwell were paused for approximately six weeks and work has now restarted in line with social distancing guidelines. When complete these projects will provide significant improvements to the customer experience at the stations, with Langley also receiving automatic ticket barriers that will help with protecting revenue and deterring antisocial behaviour. Completion for these schemes, which was scheduled for August/September, is now likely to be December the delay being a combination of the Safe Stop and less productive socially distanced work after the restart.



Rolling stock

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2020	968	1,149	1,006	0

2020/21 strategic milestone RAG

We are in producing the new Elizabeth line train fleet in phases and have built a depot to provide train maintenance facilities.

Quarter I saw the planned continuation of integration testing of the train and Automatic Train Operation signalling in the central section tunnels of the Elizabeth line, including transitions to the Network Rail mainline routes to the east and west and running multiple trains in the same tunnel under the full control of the Automatic Train Operation system.

Authorisation from the Office of Rail and Road to operate European Train Control System (ETCS) fitted Elizabeth line trains in passenger service on ETCS infrastructure was obtained and a significant milestone was reached when the first nine-car train was introduced into passenger service to Heathrow under full ETCS signalling control on 30 July 2020.

Central operating section

Testing of the baseline class 345 train and lineside-signalling software versions that will be safety-assured for use in the next

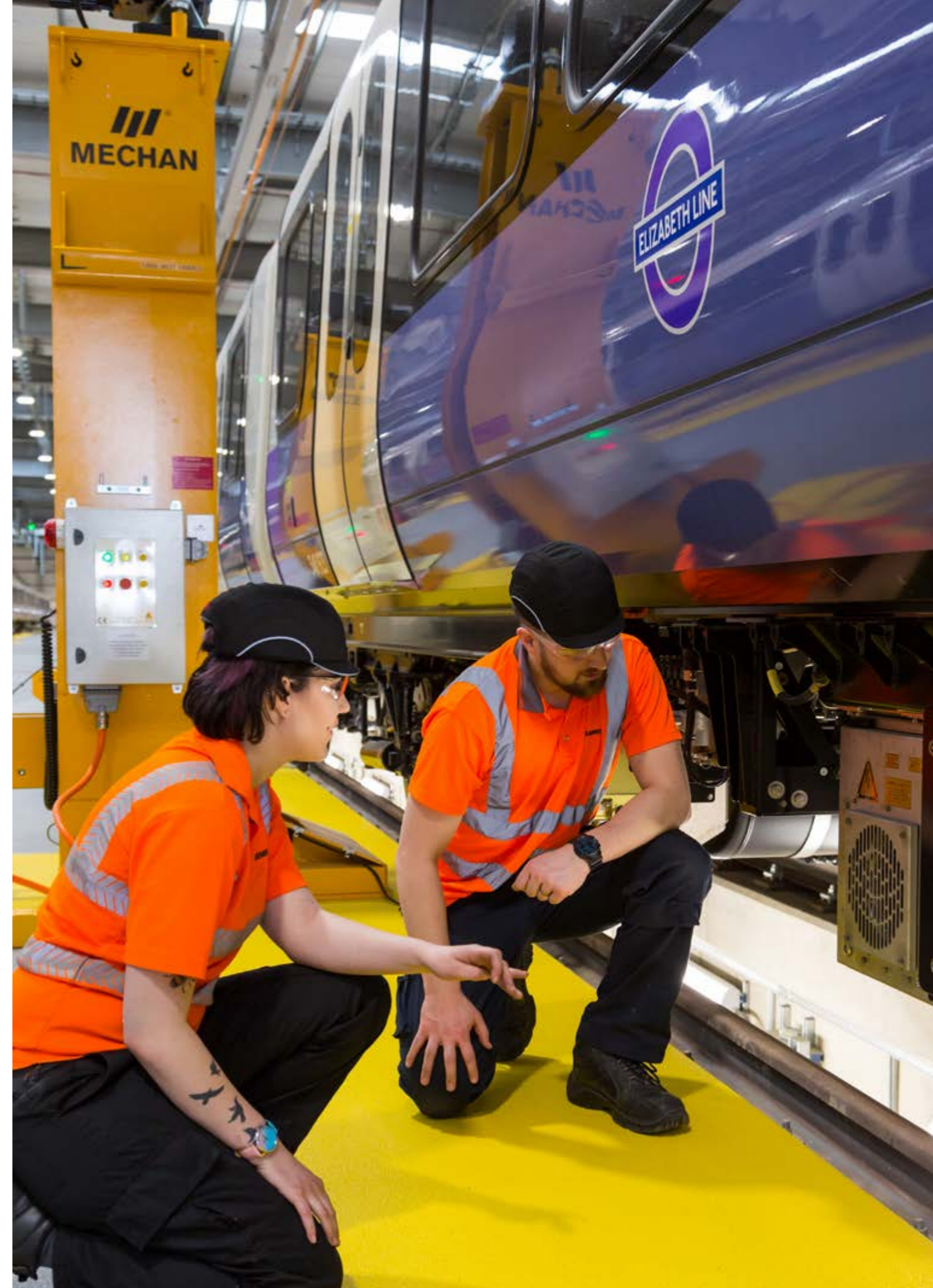
phase (Trial Running in the central section under UK 'Rail and Other Guided Systems safety legislation) completed in Quarter I, and the Crossrail safety body started the safety-assurance process. Testing of the next iteration of signalling software that will be used to further enhance the system functionality in time for Trial Running starts in September 2020.

Reading and Heathrow

The class 345 passenger services between Paddington and Reading reverted to seven-car trains following identification of a safety related defect in the nine-car variant which was withdrawn from service as a precaution. The safety related defect was subsequently resolved. Reintroduction of nine-car trains is being prioritised on the Paddington to Heathrow route.

Stratford to Shenfield

Class 345, seven-car trains continue to operate this passenger service.



A new depot will provide train maintenance for the new Elizabeth line trains

Crossrail

Forecast completion year	Spend to date (£m)	Spend authority (£bn)	EFC (£m)	EFC movement post plan (£m)
2022	*	17.6	*	*



Crossrail Ltd has continued to work on a plan to drive the Crossrail project to completion.

Although some details are still to be finalised, has provided us with an initial proposal that indicates the central section of the Elizabeth line opening during the first half of 2022.

The leadership team at Crossrail Ltd is working hard to understand the financial and delivery implications of the coronavirus pandemic on the programme.

Crossrail’s proposal is not a confirmed opening window and remains subject to review and validation. While Crossrail Ltd is reaching the final phases of the project to safely complete and deliver the Elizabeth line, it is clear that some challenges remain.

TfL Rail services continue to deliver very high performance and service levels have now reached those operated before lockdown.

Nine-car trains have been operating on services out of Paddington and have started to be operate to Heathrow.

* This information is withheld for reasons of commercial sensitivity



Custom House has now been handed over to us

Appendix

2020/21 strategic milestone performance

Our 2019/20 strategic milestones for the projects or programmes covered in this report are listed below. The RAG status indicates delivery forecast against the current plan date in line with the following key:

- On time or early
- Up to 89 days late
- 90 or more days late

Commentary is provided on milestones that are forecast to be delivered significantly (more than 90 days) late. These milestones also indicate the history of forecast date movements by showing the RAG status and variance (the number of days difference) between the plan date and the forecast date at each quarter end. Programme impact and mitigations are also detailed.

Milestone description	Plan date	Actual/forecast date	Status
Major Projects			
Four Lines Modernisation ■			
Completion of foundation for train maintenance access platform at Neasden depot	26-Aug-20	16-Jul-20	■
Piccadilly Line Upgrade programme ■			
OPO CCTV (Design & Build) Approved by TfL for Contract Award	14-Jul-20	14-Jul-20	Complete ■
Network extensions			
Northern Line Extension ■			
Completion of 22kv Installation, necessary for providing full traction power for the new extension to Battersea	01-Sep-20	01-Sep-20	■
Silvertown Tunnel ■			
Completion of pump test boreholes and all geotechnical surveys for the north site of the Silvertown tunnel	15-Sep-20	15-Sep-20	■
Barking Riverside Extension ■			
Completion of Thames Water works to divert sludge main at Pier I4	23-Jul-20	22-Aug-20	■
Major stations ■			
Bank station – Completion of the tunnel primary lining for the new DLR triple escalator	01-Sep-20	07-Sep-20	■

Milestone description	Plan date	Actual/forecast date	Status
London Underground			
Station renewals and enhancements ■			
52-hour possession on the Piccadilly line to re-rail track between Heathrow Terminals 2 & 3 and Hatton Cross on the Eastbound tunnel	06-Jul-20	06-Jul-20	■
Restart of construction activities at twelve sites (Amersham, Harrow-on-the-Hill, Osterley, Cockfosters, Mill Hill East, Debden, Ickenham, Wimbledon Park, Tottenham Hale, Acton Train Maintenance Shed, Bromley by Bow and Finsbury Park)	31-Jul-20	22-Jul-20	■
Air quality and environment ■			
Congestion Charge Changes – go live	22-Jun-20	18-Jun-20	Complete ■
Assets ■			
Victoria Coach Station infrastructure: Complete Fire System works on site	17-Oct-20	24-Sep-20	■
Public transport ■			
Reeves Corner: embedded rail track renewal. Section I – complete	14-Sep-20	14-Sep-20	Complete ■

About Transport for London (TfL)

Part of the Greater London Authority family led by Mayor of London Sadiq Khan, we are the integrated transport authority responsible for delivering the Mayor's aims for transport.

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

We run most of London's public transport services, including the London Underground, London Buses, the DLR, London Overground, TfL Rail, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and the Emirates Air Line. The quality and accessibility of these services is fundamental to Londoners' quality of life. By improving and expanding public transport and making more stations step free, we can make people's lives easier and increase the appeal of sustainable travel over private car use.

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

During the coronavirus pandemic we have taken a huge range of measures to ensure the safety of the public. This includes enhanced cleaning using hospital-grade cleaning substances that kill viruses and bacteria on contact, alongside regular cleaning of touch points, such as poles and doors, and introducing more than 1,000 hand sanitiser points across the public transport network.

Working with London's boroughs we have also introduced Streetspace for London, a temporary infrastructure programme providing wider pavements and cycle lanes so people can walk and cycle safely and maintain social distancing.

At the same time, we are constructing many of London's most significant infrastructure projects, using transport to unlock much needed economic growth. We are working with partners on major projects like the extension of the Northern line to Battersea, Barking Riverside and the Bank station upgrade.

Working with Government, we are in the final phases of completing the Elizabeth line which, when open, will add 10 per cent to central London's rail capacity. 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 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 data and technology to make services intuitive and easy to use and doing all we can to make streets and transport services accessible to all. We reinvest every penny of our income to continually improve transport networks for the people who use them every day. None of this would be possible without the support of boroughs, communities and other partners who we work with to improve our services.

By working together, we can create a better city as London recovers from the pandemic and moves forward.



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Programmes and Investment Committee



Date: 16 October 2020

Item: Independent Investment Programme Advisory Group
Quarterly Report

This paper will be considered in public

1 Summary

- 1.1. This paper presents the Independent Investment Programme Advisory Group (IIPAG) Quarterly Report for September 2020. It describes the work undertaken since the last report presented to the Committee on 20 July 2020.
- 1.2. A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendations

- 2.1 **The Committee is asked to note the Independent Investment Programme Advisory Group's quarterly report, the management response set out below 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 September 2020 is included as Appendix 1 to this paper.

4 Management Response to IIPAG Quarterly Reports

- 4.1 It has been helpful that IIPAG have completed more cross-cutting work, as outlined in their quarterly report. The IIPAG reports arising from the cost cutting work have been shared with key stakeholders within the business and actions will be put in place to address the recommendations made by IIPAG.
- 4.2 TfL welcomes the IIPAG report following the IIPAG review focussed on understanding the status of the Commercial Development transformation and to review the new governance structure and health of the assurance framework. We will be seeking to implement the findings outlined in IIPAG's report.

- 4.3 The findings from the IIPAG review on value for money were very helpful and have led to a series of workshops being held to understand key issues and to identify tangible actions that can be taken, over the short, medium and long-term.
- 4.4 The overall aim of the workstream is to drive a culture change and embedding a much more rigorous value for money (vfm) mindset across the project delivery community. From these workshops, we will be implementing a number of process improvements which will drive increased consistency of the TfL vfm approach throughout the project lifecycle to reduce the number of non-value adding activities and focusing our resources on key workstreams. This includes:
- (a) a focus on project initiation including tighter financial controls on seed funding, and passing 'Gate 0,' as per TfL's Pathway project control process, being mandatory for all significant projects;
 - (b) improved business case management e.g. greater independent review, centralised collation, monitoring and tracking of business cases throughout the project lifecycle;
 - (c) new escalation routes to Surface Directors, London Underground Executive or TfL Investment Group meetings (depending on magnitude of change) if there has been significant change to cost, scope, benefits or milestones during the project lifecycle; and
 - (d) tracking of capital efficiency through the project lifecycle.
- 4.5 Regular updates on the progress of this workstream will be provided at the TfL Investment Group meeting.

List of appendices to this report:

Appendix 1: Independent Investment Programme Advisory Group - Quarterly Report September 2020

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

List of Background Papers:

None

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Independent Investment Programme Advisory Group – Quarterly Report September 2020

This paper will be considered in public

1. Introduction

1.1. This report to the Committee covers the period from June to September 2020. It describes IIPAG's activities in this period, findings from our cross-cutting work, and the approach to our workplan for 2020/21. There are no new strategic recommendations for this period, beyond those from our cross-cutting reviews.

2. IIPAG activity

2.1. In our last Quarterly Report we noted that IIPAG's activities had been significantly reduced as a result of COVID-19.

2.2. Project Assurance Review (PAR) activity has restarted over the past couple of months. We have engaged in reviews as below:

2.3. Sub-Programmes

- Healthy Streets including the new Streetspace Programme
- Air Quality Management
- Heavy Overhaul
- Surface Technology
- Northern Line Extension
- Major Stations

2.4. Targeted Reviews

- DLR Rolling Stock replacement (update)
- Barking Riverside

2.5. We have also had briefings on Four Lines Modernisation (4LM). At the time of writing reviews of Northern Line Extension and Major Stations were still in progress and so are not included in this report, but we can provide a verbal update at the Committee meeting.

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

3. Cross-cutting work

3.1. We used the quieter period over the spring and summer to finalise some cross-cutting work, and have provided reports to TfL management on:

- Value for money: Business Cases and Prioritisation
 - TfL Standards
 - Assurance of Commercial Development
 - TfL International Consulting
- 3.2. Key findings and recommendations from these reports are provided in Appendix 1. We are seeking to finalise a report on Commercial Transformation which will be presented to the December meeting of the Audit and Assurance Committee. We are keeping a watching brief on TfL's progress with Project Initiation and Engineering Resource.
- 3.3. TfL progress on implementing IIPAG's cross-cutting recommendations
- 3.4. It is now 18 months since the current IIPAG membership starting making strategic or cross-cutting recommendations, and we have taken the opportunity to review how TfL is progressing in implementing these. At Appendix 2 we attach a table of relevant recommendations and our assessment of progress. We have included recommendations made more than six months ago, and we have grouped recommendations from our cross-cutting reviews.
- 3.5. We have seen some progress on appraisal guidance, engineering resources, and formalising a Project Initiation gate, and we will keep a watching brief on the further progress needed in these areas, notably in implementation. More progress is especially needed on our recommendations on project reporting and assurance planning and compliance. We intend to review progress on all our strategic recommendations on a six monthly basis.

4. IIPAG Work Programme for 2020/21

- 4.1. Over the past months TfL has been reviewing its investment programme in the light of the revised financial situation. It has made a number of decisions to put projects on hold or review their scope and timing, but at the time of writing TfL is awaiting Government decisions on support beyond October 2020. The contents of the investment programme are therefore not fully determined. In these circumstances we have not found it possible to provide a clear plan for our own assurance work on sub-programmes and projects for the remainder of 2020/21.
- 4.2. We are however engaging fully with the business on the reviews that are known to be needed over the next couple of months to support submissions to PIC.
- 4.3. On cross-cutting issues, in addition to the reviews recently completed or underway which are noted above, we have identified a number of topics for future consideration:
- The PMO
 - Cost performance
 - Governance and Sponsorship

- Commercial strategy
 - Capital Strategy, Signalling Strategy and Asset Management Strategy
 - How investment decisions reflect the Mayor's Transport Strategy objective for 80% sustainable travel.
- 4.4. We are currently restarting the review of the Programme Management Office (PMO) which was put on hold earlier in the year. In light of planned reductions in spend on renewal works we expect to be prioritising reviews of asset management programmes across all types of asset and modes, looking particularly at processes for condition monitoring and prioritisation. We are currently scoping a review of asset condition and prioritisation.
- 4.5. IIPAG's budget for 2020/21 is £395,000, which provides for around 340 days' work (allowing for on-costs). We expect that this will be significantly underspent due to COVID.

List of appendices to this report:

Appendix 1 – IIPAG Cross-Cutting Reports: Main Findings and Recommendations

Appendix 2 – TfL progress on implementing IIPAG's cross-cutting recommendations

List of background papers:

None

Contact Officer: Alison Munro, Chair of IIPAG

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1. Value for Money: Business Cases and Prioritisation

- 1.1. This review focussed on two specific aspects of value for money (vfm) – business cases and prioritisation. Value for money has several other dimensions, and there is not a common language for vfm in TfL. We recommend that TfL should set out in one place its policy and approach to vfm as a whole, and the various aspects of vfm.
- 1.2. We found that there is extensive guidance on business case methodology, and further development and training is underway. Some of the high profile projects have developed strong business cases, and parts of the business have well-established practice. However across the piece there is variable quality. In our report we identify some common weaknesses that we have observed. Business cases often do not appear to be a key driver of decisions such as option selection. Whilst we recognise that political and strategic considerations also have an important part to play, they should not override the requirements for robust assessment of value for money.
- 1.3. There is less guidance on what is expected in terms of vfm to support authority requests at programme or sub-programme level, or on the evidence needed to support prioritisation. We have seen few examples of good practice, and governance bodies are not consistently challenging the quality of what is presented to them.
- 1.4. In TfL's current financial circumstances vfm is more important than ever. TfL needs a stronger culture and practice of vfm, both in decisions on projects and in prioritising its expenditure. This culture needs to come from the most senior levels, and be driven through all the governance bodies. In our view this culture change is the single most important way of improving value for money in TfL.
- 1.5. Sponsors have the key accountability for achieving vfm in their projects and programmes, and in our view they need to give this greater priority and visibility. We welcome the increased attention that Investment Group is paying to vfm, but we consider that the Finance Group can take a strong role as champion and challenger of vfm at all levels. We recommend that capability in business cases and prioritisation needs to be developed in IDP/sponsorship, and in Finance.
- 1.6. We also recommend that TfL should enhance its guidance and best practice on business cases and prioritisation, and consider the scope for strengthening its processes to require better evidence on vfm.
- 1.7. We recognise that in general these are not changes that can be made overnight. We will monitor progress on an on-going basis and review it more comprehensively in early 2021.

2. TfL Standards

- 2.1. TfL standards are generally used in conjunction with national and international standards and perform a vital role in protecting the business from potentially expensive mistakes in specification, design and construction. There is however recognition within the business that the way they are implemented varies significantly across different parts of TfL and that there are opportunities to improve their impact in terms of value for money.
- 2.2. Last year the TfL Standards Improvement Programme was set up as part of the wider objective to drive efficiencies. The principal aim of the Programme is to create continuous improvement in standards development in order to reduce costs. Our recommendations have been made in the context of the work of the Programme.
- 2.3. This review identifies a number of opportunities to improve standards, grouped into Structural opportunities (the way standards are drafted, organised and maintained) and Cultural opportunities (the way the organisation uses its standards) and makes the case for change. Recognising that TfL's challenge with its standards is not unique, we have also included a relevant external case study from a large multi-national, operating in a safety critical sector, with a multi-billion dollar annual capital budget.
- 2.4. Our recommendations are based on supporting and focussing the efforts of the Standards Improvement Programme over the current year, with a review of progress in around 12 months. We think that the work of the Programme should be supported by strong senior leadership and a high level of ambition. For greatest impact, efforts should be focussed initially in a limited area through an intensive programme of standards review and change along the lines of the case study included in the report. As a shorter term measure we also recommended that a robust standardised risk assessment should be developed as a priority, for use in concession applications.

3. Commercial Development

- 3.1. The main focus of this review has been to understand the status of Commercial Development (CD) transformation and to review the new governance structure and the health of the assurance framework. The main review took place during COVID lockdown and was updated in August.
- 3.2. CD is standing up a new TfL subsidiary in 20/21, currently called DevCo, which incorporates Property Development, Property Management and Commercial Property. The CD Director is also responsible for Estates Management and International Consulting.
- 3.3. CD is a property business and is very different to the TfL transport service business. It requires tailored governance and management processes. Much of property development delivery is done in joint venture (JV), partnering with some of the UK's most successful property development companies.

- 3.4. The governance structure for DevCo is close to being finalised. CD and DevCo act in full compliance with TfL governance, standing orders and financial reporting processes. We think that corporate governance design as it relates to the investment decision process is clear. We believe that the post contract delivery governance needs further development in some areas.
- 3.5. With regard to the management of delivery risk, areas that require more focus are project management and contract management. The TfL risk associated with limited visibility of JV delivery risk management and supply chains is of concern especially as each JV has different partners, processes and reporting. Standardised reporting is highly recommended and could be facilitated by the introduction of Pathway on all projects, which is currently work in progress with PMO.
- 3.6. The assurance framework is an area requiring more development. First line assurance on projects requires a written process. Second line assurance has not been applied so far and now is a good time for Project Assurance to assist with the framework design and planning. As for third line assurance, Internal Audit has included CD in their Audit Plan; IIPAG has not reviewed CD before now. IIPAG proposes to review CD annually and to carry out some project reviews.
- 3.7. IIPAG is impressed with the emphasis on getting the basics right in time to manage the large volume of projects due to start delivery shortly. We have seen good planning and teamwork and a targeted use of external experts and industry leaders.

4. TfL International Consulting

- 4.1. TfL Consulting was set up in 2018 in response to a commitment in the Mayor's manifesto to generate revenue by selling TfL expertise at home and abroad. The business is still in its start-up stage but has reached its target staff level of 18 FTEs. The overriding strategic objective is to minimise risk to TfL through careful selection of opportunities and partners.
- 4.2. In the last two years the business has generated revenues of circa £1m from projects delivered in eight different countries. The target is to grow turnover rapidly to £45m in year five, with the bulk of the revenue being generated through O&M contracts delivered via joint ventures. The current year's revenue target is approximately £5m. We have concerns over the challenging 5-year revenue targets and, in particular, that for O&M work. Although O&M opportunities certainly exist, we suggest that achieving the revenue target would require the acceptance of levels of risk which TfL has previously not considered appropriate. The availability of key specialist resource may also become a constraint on future growth.
- 4.3. Good work has been carried out to set up key business and governance processes, including the Complexity Authority Matrix and modifications to Pathway. An accredited Quality Management system is planned for early establishment; we believe this is needed as a priority to help assure project deliverables and comply with client requirements.
- 4.4. The business is currently operating without a dedicated timesheet and financial system. As the business grows, this will become increasingly inefficient and error prone. A timesheet and associated finance system is needed urgently.

- 4.5. Although the TfL Audit team have been working with the TfL Consulting team during its start-up phase, in our view TfL Project Assurance should be involved to provide second line assurance through continuous assurance and review of higher risk projects.
- 4.6. TfL Consulting has adapted to the Covid situation rapidly and flexibly and is currently pursuing a large number of secondments (>200) to Central and Local Government organisations for TfL staff with the right skills and experience who would otherwise remain on furlough.

Appendix 2

TfL progress on implementing IIPAG's cross-cutting recommendations

	Recommendation	Progress
1	IIPAG recommends that those governing and assuring projects and sub-programmes should be provided with information which shows clearly how the Estimate Final Cost, spend versus budget, spend versus delivery, and expected completion dates have evolved over the life of the projects and sub-programmes. TfL Project Assurance / TfL Programme Management Office (PMO) should advise on what information should be routinely provided.	This information is not yet consistently provided. See recommendations on Project Reporting below.
2	IIPAG recommends that TfL establishes a rigorous and consistent approach to the quantification and valuation of economic development and housing benefits associated with transport investments, with a central source of expertise to provide guidance and to ensure consistency of its application across all projects and programmes	TfL Investment Appraisal has produced a guidance note clarifying what needs to be done. City Planning is to produce detailed guidance on housing distribution and impacts. We have not recently reviewed any projects which used this new guidance.
3	IIPAG recommends that, to the extent that work is not already underway, TfL should review its key areas of resource risk, and identify a plan to mitigate and manage these, starting with engineering resource.	Engineering resources have been reviewed and action taken to address shortages. The concerns being raised last year have not been raised in any reviews this year but of course this could be a consequence of COVID and many projects not requiring the planned level of resources. The engineering resource situation will continue to be monitored. We anticipate that reviews will also be needed of commercial and PMO resources.

	Recommendation	Progress
4	IIPAG found that project reporting was inconsistent, burdensome and inefficient, and did not systematically present leaders with the information that they require to make the best decisions. We recommended that, as a first step, TfL agreed a single format for reporting the health of the most important projects, including a judgement of delivery confidence, and began to use this format in governance meetings.	A standard reporting format has been proposed by the PMO and agreed in principle, but the implementation of the new format has stalled in 2020. There has recently been some renewed momentum in this area.
5	After reviewing the effectiveness of assurance, IIPAG recommended improved assurance planning and more compliance with standard tools and methods in the first line of defence.	We will review progress formally at the end of the year, but in those projects and sub-programmes we have considered so far in 2020 we have not yet detected any improvement in the planning of first line assurance or an uptick in compliance.
6	Project Initiation: It is recommended that all investment for projects should have to pass Pathway Stage 0 and those with a capital value above £50M should require senior independent Stage 0 review.	IIPAG worked closely with PMO and TfL Investment earlier this year to agree enhanced management and authorisation around project initiation including such additions as Pathway Stage 0. However, as a consequence of COVID-19 there has been no project initiation to test any of the enhanced controls.

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Programmes and Investment Committee

Date: 16 October 2020

Item: TfL Project Assurance Update



This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the project assurance work undertaken between 27 June and 19 September 2020. A total of six reviews were undertaken, consisting of two programme and four project assurance reviews.
- 1.2 These reviews gave rise to 28 recommendations, of which two are considered critical. Critical issues are those which the TfL Project Assurance team and/or IIPAG believe should be addressed before projects proceed to the next stage.
- 1.3 Normally this paper provides a summary of the key findings from the project assurance reviews undertaken. However, given the ongoing impacts to the business, the common theme that continues to affect projects widely remains the impact of the coronavirus pandemic on programmes, resources and finances. We will continue to monitor the effect on scope, cost, programmes and risk as the capital investment programme is revised.
- 1.4 A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from 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 The TfL Project Assurance update provides the Committee with a summary of the assurance activity completed by TfL's second line assurance, provided by TfL's Project Assurance team, and third line assurance, provided by IIPAG.

4 Summary of Project Assurance Activity

- 4.1 Two programme reviews were undertaken between 27 June and 19 September 2020, with IIPAG involved in both reviews. In the same time period four project assurance reviews were undertaken, with IIPAG involved in three of these.

- 4.2 From the reviews undertaken, a total of 20 recommendations were made by TfL Project Assurance. These consisted of 18 general recommendations and two critical issues. All general recommendations and critical issues have been agreed with the respective project teams.
- 4.3 Appendix 1 provides a summary of the critical issues and the actions being taken to address them.
- 4.4 From the assurance reviews undertaken, IIPAG made eight general recommendations, with all of these agreed with the respective project teams. IIPAG made no critical recommendations.
- 4.5 The following graphs show the number of open recommendations, the number which are overdue, and the number of recommendations closed in the quarter. Of the overdue recommendations, 14 (one by IIPAG and 13 by Project Assurance) are critical issues. The overdue critical recommendation raised by IIPAG relates to the Four Lines Modernisation (4LM) programme. The 4LM project team is continuing to review the programme and, once concluded, will be able to address and close the overdue recommendation.

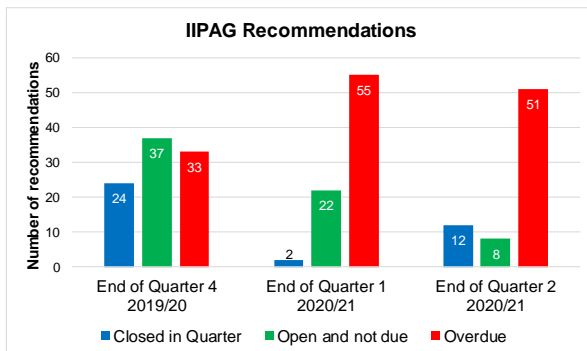


Figure 1: IIPAG Recommendations

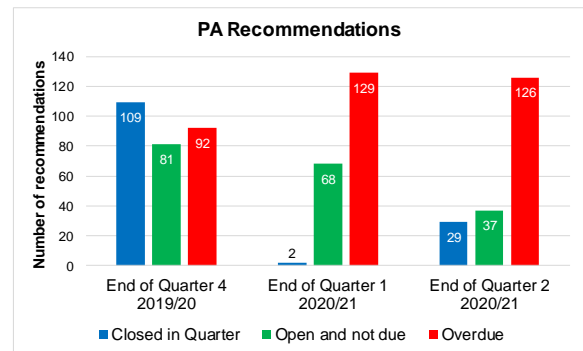


Figure 2: Project Assurance Recommendations

- 4.6 Recommendations relating to projects that are currently paused, due to the impacts of the coronavirus pandemic on the investment programme, have not been included in the above data. Should these projects resume then revised recommendation action dates will be agreed and included in data reported to subsequent meetings of the Committee.
- 4.7 The impact of the coronavirus pandemic on the investment programme and the number of TfL staff on furlough has continued to impact on our ability to address and close recommendations. With the ongoing return of staff from furlough we are now actively addressing the number of overdue actions.

List of appendices to this paper:

Appendix 1: Overview of Critical Issues

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

List of background papers:

None

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Appendix 1: Overview of Critical Recommendations

Shown below are the critical issues which have been raised and agreed with the respective project teams.

Project: New Routemaster Refurbishment		
Raised by	Critical Issue	Management Response
Project Assurance	The £6.9m funding gap should be closed.	<p>When a preferred option has been identified, robustly evidenced and agreed, Surface Finance will be engaged to seek adequate funding in the 2020 Business Plan.</p> <p>If such funding cannot be secured then either: (a) the number of buses planned to be refurbished will be reduced; (b) the refurbishment scope for each bus will be reduced; or (c) a combination of (a) and (b). Under any option, additional funding to deliver as much of the full scope as possible would be sought in subsequent business plans.</p>
Project Assurance	The business case should clearly demonstrate value for money, with the selected scope items linked to benefits and the affordable option re-examined with appropriate sensitivity analysis, including the “Do Minimum” option.	<p>The options will be reviewed, and more robust justification will be provided. The business case will be updated accordingly. At least one option will be affordable within the £19.2m currently allocated in the H2 budget.</p> <p>A qualitative assessment of each of the revised options against the project’s objectives will be undertaken and included in the revised business case.</p> <p>Additional sensitivity tests will be run to confirm the effect of:</p> <ul style="list-style-type: none"> i) increasing the costs of replacement buses; ii) refurbishing fewer buses; and iii) accelerating the delivery programme.

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Programmes and Investment Committee



Date: 16 October 2020

Item: London Underground Technology Programme

This paper will be considered in public

1 Summary

- 1.1 This paper requests the creation of a new ‘London Underground Technology Programme’ (the Programme), provides an overview of the constituent projects and details the associated business investment in 2020/21 and 2021/22.
- 1.2 The new Programme will streamline existing technology project governance within London Underground (LU) and support a strategic and integrated approach to the utilisation of technology across the LU estate.
- 1.3 The scope of this paper is limited to activities directly funded by LU. Technology projects directly funded by Surface Transport are governed through the Surface Transport Technology Programme, while a further paper is being submitted to the Committee in March 2021 by TfL’s Technology and Data directorate, covering all other technology projects within TfL.
- 1.4 Of the £205.1m estimated final cost (EFC) of the Programme, around 90 per cent will be spent on renewals projects, with remaining funding spent on asset and systems enhancements.
- 1.5 Subject to approval, the new Programme will transition to an annual reporting cycle, returning each year to renew and validate a rolling two-year approval for the required authorities. As some projects already have significant milestones planned for late 2020, several papers relating to individual projects will be submitted to the Committee in early 2021 as outlined in Appendix 1.

	Financial Authority (£m)	Estimated Final Cost (EFC) (£m)	Existing Programme and Project Authority (£m)	This Authority Submission (£m)	Future Authority Requests (£m)
Proposed LU Technology Programme	205.1	205.1	94.7	(N/A)	110.4

Figure 1: Programme and Project Authority Request Summary

2 Recommendations

2.1 The Committee is asked to note the paper and:

- (a) approve the creation of a new programme for London Underground Technology; and**
- (b) approve the transfer of the relevant Programme and Project Authorities to the London Underground Technology Programme from other programmes as set out in Appendix 3 of this paper, giving a total Programme and Project Authority of £94.7m.**

3 Background


- 3.1 The Mayor's Transport Strategy (MTS) sets out a vision that TfL "will work to ensure its information systems and payment platforms take account of technological advances and evolve to remain fit for purpose" (Proposal 102). TfL's response to the MTS) sets six priorities, including: "to exploit technology to produce better and faster results".
- 3.2 The creation of a London Underground Technology Programme is intended to provide a holistic overview of all client-funded capital expenditure for technology projects being delivered for LU and establish a robust structure to support increased levels of investment in technology in the coming years. Creating the Programme ensures visibility of these component projects to the Committee. This approach has been successfully applied in Surface Transport technology.


4 Investment Plan 2020/21-2021/22

- 4.1 The Programme will consist of 13 projects in 2020/21, ranging from significant infrastructure projects such as Connect (around £99.6m) to small incremental improvements to back-office systems. Figure 2 provides an overview of these projects. Further information on expected costs can be found in Appendix 2.
- 4.2 While most of the projects within the Programme are designed to deliver outcomes specific to LU, several are part of wider efforts across TfL to improve customer services and business operations. For example, the Revenue Protection project is part of a pan-TfL work-stream to tackle fare evasion. Those projects which will contribute to TfL-wide objectives are also highlighted in Figure 2 below.

Name	Description	EFC (£m)	Project Type	Next Planned Submission
Connect	Infrastructure upgrades to maintain operations of critical radio communications.	99.6	Renewals	January 2021
Asset Management Information Systems (AMIS)	Consolidation of numerous asset mgmt. systems into one integrated system	20.3	Renewals	February 2021
Station Security Technology Integration Programme (SSTIP)	Upgrades to CCTV and station security systems across network	38.4	Renewals	January 2021
Body Worn Cameras	Roll out of body-worn cameras to operational staff	3.6	Enhancements	None
Tracker-net	Software upgrades to Tracker-net system	0.5	Renewals	None
Wi-Fi – LU Stations	Installation of Wi-fi at stations	18.2	Enhancements	None
Wi-Fi – Crossrail Stations	Installation of Wi-fi at stations	3.5	Enhancements	None
Data and Vis. Improvements	Enhancements to data processes and visualisation.	2.6	Enhancements	None
Revenue Protection Programme	Various works to support revenue protection	3.2	Renewals	None
Competency Management Systems (CMS)	Delivery of new CMS for LU drivers	2.8	Enhancements	None
Staff Devices	Issue of updated tablets to operational staff	3.9	Renewals	April 2021
Feasibility Studies/Minor Interventions	Minor works across the network	8.5	Renewals	None
Total		205.1		

Key

 Project Outcomes are LU Specific

 Project Outcomes are common across TfL Business Areas

Note – Projects highlighted in blue fill have been deferred as part of TfL’s response to the coronavirus pandemic.

Figure 2: Overview of LU Technology Projects

- 4.3 Several projects within the proposed Programme were deferred as part of TfL’s response to the coronavirus pandemic, with works due to recommence in Spring 2021. The deferred projects are not operationally critical and there are no significant operational or business risks associated with these projects being paused until 2021. A prolonged deferral period, however, may impact our ability to meet longer-term business objectives such as tackling fare evasion and improving Wi-Fi connectivity across the network.
- 4.4 Those deferred projects are highlighted in Figure 2 and will be subject to the relevant approvals to ensure that the works are resumed safely in 2021.

Significant Projects in the Programme

- 4.5 The Programme will contain a wide range of projects delivering renewals and enhancements across LU. There are three significant investment projects currently in delivery which are highlighted below.

Connect (£99.6m)

- 4.6 The Connect system is an operational network that provides communication services between LU control centres, stations, train drivers and station staff, and links a wide range of applications critical to the operation of the network. It is of essential importance to the ongoing reliable and safe functioning of the Tube and without the service it provides, the LU network would be unable to operate.
- 4.7 The Connect project consists of strategic planning and a series of capital upgrades to enable the continued effective operation of the Connect system to 2026. To ensure the continued operation beyond 2026 further investment in Connect will be required, or a new operational radio strategy implemented.
- 4.8 Delivery is progressing well and approximately £19m has been spent to date, primarily upon upgrading the core radio hardware and supporting software. The next significant milestone is scheduled for late 2020, at which point a further submission is planned to secure the necessary approvals to commence the next stage of delivery, including the replacement of around 300 radio base stations across the underground network. The project is due to complete by March 2025.

Asset Management Information Systems – AMIS (£20.3m)

- 4.9 LU continues to invest heavily in the maintenance and renewal of critical assets; this investment represents around 60 per cent of LU's total budget. An effective asset management system is vital to both target that investment in the most cost-beneficial manner and support day-to-day asset operations activities. Currently, however, LU operates two asset management systems, each supported by an ecosystem of other products many of which are legacy products and no longer fit for purpose.
- 4.10 The LU AMIS project will consolidate the various asset management systems used by LU into a single, consolidated structure and support the delivery of a fully integrated pan-LU asset operations team. The successful delivery of the AMIS project will enable LU to deploy maintenance staff more effectively across legacy boundaries and work to realise necessary efficiency savings in maintenance.
- 4.11 The LU AMIS project is part of a wider pan-TfL effort to consolidate asset management systems, with Surface Transport and other modes within TfL also migrating to the same asset management system. This convergence to a single management system is intended to improve asset management capability across TfL.

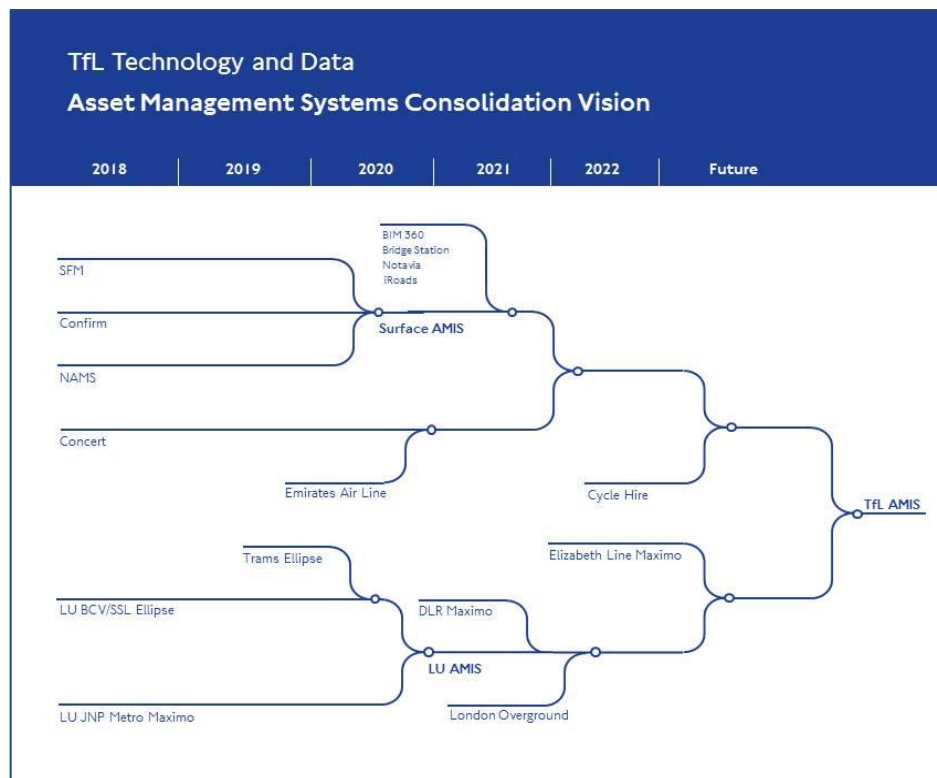


Figure 3: Pan-TfL Asset Management Consolidation approach

4.12 Delivery is progressing well, with approximately £7m spent to date. The next significant delivery milestone is planned for late 2020, at which point the necessary authorities will be requested to complete the project. The project is scheduled for completion in early 2022.

Station Security Technology Integration Programme - SSTIP (£38.4m)

4.13 SSTIP was established in 2019 to address three key business risks:

- (a) **Security Risks:** Enabling selected station communication assets to be remotely accessed and controlled in the event of a major incident to reduce the risk of loss of life;
- (b) **Compliance Risk:** Ensuring CCTV footage can be securely handled to comply with GDPR, through both short-term tactical solutions and longer-term solutions to better manage and utilise CCTV data; and
- (c) **Obsolescence Risk:** Ensuring there is a pragmatic solution and method to overcoming aging station communication assets through planned refreshes and capital programmes.

4.14 To address these risks, SSTIP was sub-divided into three main tranches of delivery. These tranches are being delivered incrementally over a five-year period, enabling early realisation of operational benefits. Throughout 2020 the project has been progressing through a 'proof of concept' stage. This stage is due to complete in late 2020, following which an authority submission is planned to enable to the next stage of works to progress.

- 4.15 The scheme is progressing well, with key successes including the successful testing of CCTV web streaming and remote operation of gate-lines. Subject to the granting of additional authority in early 2021, the project will roll-out these improvements across the entirety of the London Underground network.

5 Programme Benefits

- 5.1 Harnessing rapidly changing technology and using it to positively contribute to improving London's transport network, as set out in the MTS, is a key deliverable for this Programme.
- 5.2 The establishment of this new Programme is intended to support the efficient and timely uptake of new technologies to help reduce both operational and capital costs in the future. Additionally, the integration of many programme governance, reporting and financial management activities will mean more efficient project sponsorship and oversight achieved through economies of scale.
- 5.3 The proposed Programme will contribute strongly to key MTS themes:
- (a) **A Good Public Transport Experience:** Advances in technology provide an opportunity to interact better with our customers and respond to their changing travel habits, providing personalised travel updated and making services more accessible, inclusive and better value for money. We will make the most of new technology and innovations in customer service, including ensuring our staff are equipped with mobile devices and extending the provision of Wi-Fi across the network.
 - (b) **Safety and Security:** The application of technology will also support the delivery of programmes aimed at making public transport safer and more secure for all, reducing levels of crime and the fear of crime and enabling us to better support London's police services.

6 Financial Implications

- 6.1 The cost of the proposed Programme is set out in Figure 4. This covers the life of the five-year Business Plan and includes:
- (a) five Year Financial Authority of £205.1m;
 - (b) five Year EFC of £205.1m; and
 - (c) existing Programme and Project Authority of £94.7m.
- 6.2 As the Programme matures an annual request to the Committee will be made, covering the Programme and Project Authority required for the following two years, with the next Programme-level request planned for October 2021. The Committee will be updated on a quarterly basis on delivery of the Programme.

Project	Financial Authority (£m)	Estimated Final Cost (EFC) (£m)	Spend to Date (p6 2020/21)	Existing Programme and Project Authority (£m)	Future Authority Requests (£m)
Connect	99.6	99.6	17.3	42.7	56.9
AMIS	20.3	20.3	6.1	16.3	4.0
SSTIP	38.4	38.4	2.7	8.0	30.4
LU Body Worn Video	3.6	3.6	1.4	3.6	-
Tracker-net	0.5	0.5	0.4	0.5	-
Wi-Fi – LU Stations	18.2	18.2	18.0	18.2	-
Wi-Fi – Crossrail Stations	3.5	3.5	2.0	2.2	1.3
Revenue Protection Programme	3.2	3.2	0.5	0.6	2.6
Competency Management System	2.8	2.8	0	-	2.8
Performance Analysis and Improvement	2.6	2.6	2.4	2.6	-
Staff Devices	3.9	3.9	0	-	3.9
Feasibility Studies/Minor Interventions	8.5	8.5	0	-	8.5
Total	205.1	205.1	50.8	94.7	110.4

Figure 4: Overview of project authorities and spend to date

6.3 Programme and Project Authority for the above projects are currently located in various existing Programmes. To facilitate the delivery of these projects as part of the new Programme, a transfer of these authorities is requested. The current location of these projects is shown in Appendix 3.

7 Equalities Implications

7.1 The Programme will be delivered in accordance with the Equality Act 2010. Consideration is given to the need for an Equality Impact Assessment for each project.

8 Assurance

8.1 TfL Project Assurance has conducted an Integrated Assurance Review (IAR) on the proposed Surface Technology Programme in September 2020.

- 8.2 The objective of the IAR was to evaluate the proposal to create a new LU Technology Programme and establish the proposed programme's readiness to deliver its outcomes. The IAR followed set lines of inquiry to answer whether, subject to its creation, the Programme was sufficiently placed managed for the Committee to approve relevant Authorities.
- 8.3 The IAR found no critical issues with the proposal to form a new Programme. Six recommendations were made, all of which are accepted within the management response and will be implemented subject to the approval of this paper.

List of appendices to this paper:

Appendix 1: Transition Plan

Appendix 2: Overview of Expected Spend

Appendix 3: Transfer of Programme and Project Authority from existing Programmes to LU Technology Programme

List of Background Papers:

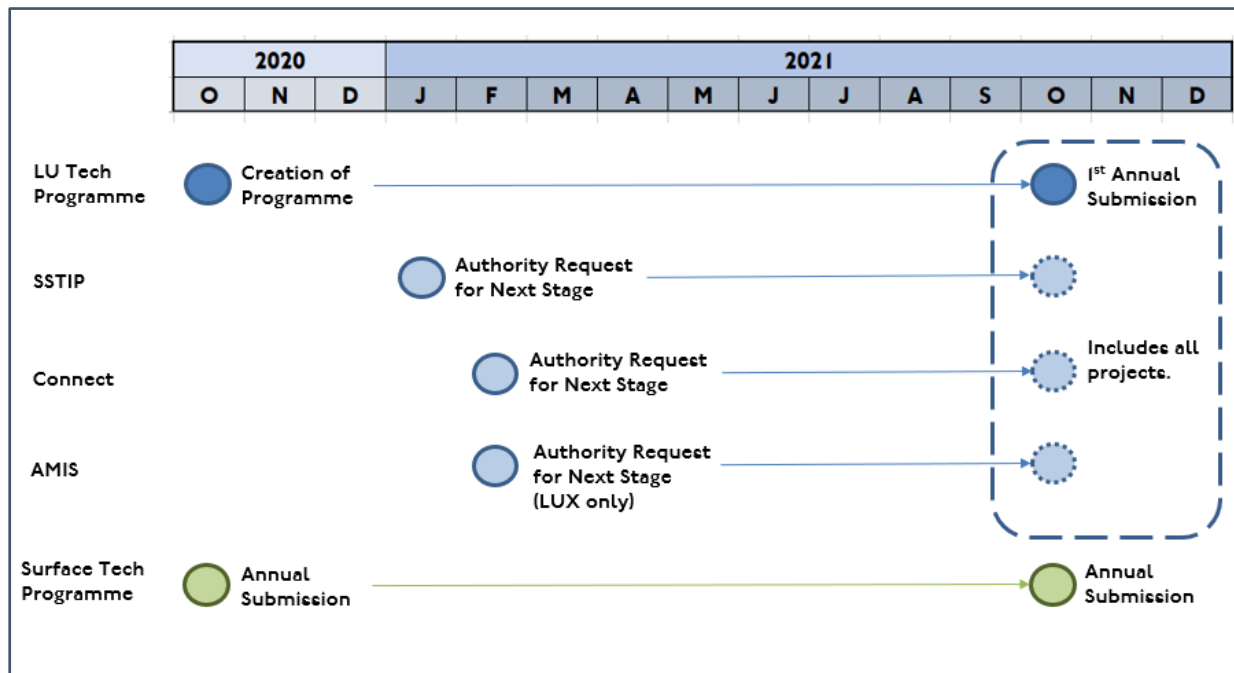
Independent Investment Advisory Group Report

TfL Project Assurance Reports

Management response to IIPAG and TfL Project Assurance Reports

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Appendix 1: LU Technology Programme – Transition Plan



Subject to the creation of the LU Technology Programme in October 2020, two further submissions for individual projects are anticipated in early 2021. These submissions, for the Connect and SSTIP projects, will request the necessary authorities to progress these projects through the next stage of delivery.

A submission for the AMIS project is also scheduled for early 2021, though the level of authority to be requested is anticipated to fall within the limits of LU’s delegated officers.

Annual submissions for the LU Technology Programme will then be made each October, aligning with the submission covering Surface Technology and thereby providing a more strategic overview of TfL’s investment in technology.

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Appendix 2: LU Technology Programme Overview – Expected Spend (all values in £m)

Status	Project	Financial Authority 2019/20 – 2024/25	EFC 2019/20 – 2024/25	Prior Years Spend	Expected Spend 2020/21	Expected Spend 2021/22	Expected Spend 2022/23	Expected Spend 2023/24	<i>Expected Spend 2024/25</i>
Live	Connect	99.6	99.6	16.7	4.5	36.3	24.7	15.0	2.4
	SSTIP	38.4	38.4	1.5	4.6	12.5	9.6	5.3	4.9
	AMIS	20.3	20.3	4.4	7.8	8.1	-	-	-
	LU Body Worn Video*	3.6	3.6	-	3.6	-	-	-	-
	Tracker-net	0.5	0.5	0.4	0.1	-	-	-	-
Deferred as part of TfL's response to COVID- 19	Wi-Fi – LU Stations	18.2	18.2	18.0	0.2	-	-	-	-
	Wi-Fi – Crossrail Stations	3.5	3.5	2.0	0.2	1.3	-	-	-
	Revenue Protection Programme	3.2	3.2	-	0.6	2.6			
	Competency Management System	2.8	2.8	-	0.2	2.0	0.2	0.2	0.2
	Performance Analysis and Improvement	2.6	2.6	2.4	0.2	-	-	-	-
	Staff Devices	3.9	3.9	-	-	3.9	-	-	-
	Feasibility Studies/Minor Interventions	8.5	8.5	-	-	0.1	0.7	0.7	7.0
	Programme Total	205.1	205.1	45.4	22.0	66.8	35.2	21.2	14.5

**Body Worn Video is jointly funded by both LU and Surface Transport, therefore it also appears within the Surface Technology Sub-Programme (in the Staff Safety Programme)*

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Appendix 3: Transfer of projects from existing programmes to LU Technology Programme

Project	EFC (£m)	Project and Programme Authority (£m)	Current Location	Proposed Location
			Programme	Programme
Connect	99.6	42.7	Technology and Data - Networks	LU Technology
Asset Management Information Systems (AMIS)	20.3	16.3	N/A (approved via LUX)	LU Technology
Station Security Technology Integration Programme (SSTIP)	38.4	8.0	LU Stations	LU Technology
Body Worn Cameras	3.6	3.6	N/A (approved via LUX)	LU Technology
Tracker-net	0.5	0.5	Technology and Data - LU and Rail	LU Technology
Wi-Fi – Stations	18.2	18.2	Technology and Data – Networks	LU Technology
Wi-Fi – Crossrail	3.5	2.2	Technology and Data – Networks	LU Technology
Data and Vis. Improvements	3.2	0.6	Technology and Data - Data and Analytics	LU Technology
Revenue Protection Programme	2.8	-	Technology and Data - Payments and Ticketing	LU Technology
Competency Management Systems (CMS)	2.6	2.6	Technology and Data - LU and Rail	LU Technology
iPad Replacements	3.9	-	Technology and Data - Digital Workplace	LU Technology
Feasibility Studies and Minor Works	8.5	-	N/A	LU Technology
Total	205.1	94.7		

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Programmes and Investment Committee

Date: 16 October 2020

Item: Surface Technology Programme 2020/21

This paper will be considered in public

1 Summary

Surface Technology Programme 2020/21		
Existing Financial Authority for 2020/21 – 2024-25	Estimated Final Cost for 2020/21 - 2024/25	Programme and Project Authority Requested for 2020/21
£246m	£245m	£20.3m

- 1.1 This paper is requesting £20.3m of Programme and Project Authority for 2020/21 for delivery the Surface Technology Programme (the Programme). Over 80 per cent of this funding supports renewals of existing systems; under 20 per cent supports new systems in priority areas like staff safety, road safety and revenue generation.
- 1.2 Key activities and decisions planned during this time include:
 - (a) launching invitation to tender for the replacement iBus system in late 2020. The current system is vital to provide real-time bus information to our customers and to traffic lights that give bus priority, as well as informing payment of performance bonuses to bus operators;
 - (b) issuing the invitation to tender for procurement of 50 unattended deployable cameras in late 2020, to reduce non-compliance with moving traffic regulations at priority locations identified for road safety and congestion; and
 - (c) core renewals and modernisation of the Cycle Hire Scheme, including introducing e-bikes and a new tariff structure. The incumbent supplier Cubic would be commissioned to develop the back office system in early 2021. This would modernise the scheme, reduce the subsidy required to operate cycle hire and support additional cycling trips.
- 1.3 The Programme will return to the Committee in March 2021 to validate a rolling two-year approval for renewal elements and to highlight key decision points for significant projects. Previous approval was granted in March 2019 for £77.7m across 2019/20 and 2020/21.
- 1.4 A paper is included on Part 2 of the agenda, which contains exempt supplementary information. The information is exempt by virtue of paragraph 3

of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

2 Recommendations

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

(a) approve Programme and Project Authority of £20.3m for the Surface Technology Programme for the Financial Year 2020/21; and

(b) note that Procurement Authority for the various initiatives in this paper will be sought at officer level in accordance with Standing Orders.

3 Background

3.1 The Mayor's Transport Strategy (MTS) sets out a vision that TfL "will work to ensure its information systems and payment platforms take account of technological advances and evolve to remain fit for purpose". (Proposal 102). TfL's response to the MTS sets six priorities, including: "to exploit technology to produce better and faster results".

3.2 The Programme provides a holistic overview of client-funded capital expenditure for technology projects being delivered for Surface Transport, and provides a robust structure to support increased levels of investment in technology in the coming years that enable many pillars of the MTS including Healthy Streets, Vision Zero and enhancing customer experience.

4 Investment Plan 2020/21

4.1 The Programme is responsible for projects delivering outcomes for Surface Transport using technology. The primary driver for these projects is renewal of existing systems required to continue core operations within Surface Transport, such as optimising traffic signals, tracking buses in real time and tasking compliance on street.

4.2 Over 80 per cent of authority sought (£16.6m) is for core renewals projects ensuring continuity of operations. These projects typically deliver enhanced functionality, exploiting advances in technology to improve performance. The remaining authority sought (£3.7m) will deliver new systems in targeted areas to deliver enhancements in priority areas like staff safety, road safety and revenue generation which are central to Surface Transport's operations.

4.3 The Programme covers three broad areas, which share common outcomes (as detailed below and in Figure 1).



Figure 1: Surface Technology Programme – Key Areas of Focus

Roads Technology

- 4.4 The projects Roads Technology include the Surface Intelligent Transport Systems (SITS) Programme, which would deliver over £450m of Journey Delay and Journey Time Reliability benefits by 2031 by reducing delay, supporting mode shift away from car travel and improving prioritisation for active and public modes like buses, walking and cycling.
- 4.5 Funding in this request would ensure delivery of the Real Time Optimiser and Common Operational View Incident Management Systems continues. These systems replace vital operational systems that dictate traffic signal timings and give TfL a real-time view of London’s road network. The first slices of functionality have already been deployed into use in these systems, with a video analytics trial and deployment of the Future SCOOT system to an initial junction due in early 2021. This funding would also deliver the data these systems require, including enhanced data across active modes of travel like walking and cycling. This will improve multi-modal management of London’s road space, and ensure contractual commitments to suppliers are met.

Compliance, Enforcement and Safety Technology

- 4.6 The projects supporting Compliance, Enforcement and Safety maintain and develop technology for compliance-based regimes to ensure road safety and public transport safety standards.
- 4.7 The Deployable Enforcement Cameras project will introduce 50 unattended cameras on the network by 2022. These cameras will improve enforcement capabilities, reducing collisions and congestion caused by non-compliance with civil traffic regulations like banned turns, yellow box junctions and bus lanes, at priority sites for road safety and congestion.

- 4.8 We estimate that these cameras would generate an additional 145,500 penalty charge notices saving an average of 3 Killed or Seriously Injured collisions per year. Over 1,000 sites have been identified as safety and congestion priorities which are potentially able to accommodate these cameras, and funding for a further 350 cameras is sought over the life of the 2020 Business Plan, to 2025/26. Procurement of these cameras would commence in late 2020, following an Integrated Assurance Review..



Figure 2: Unattended Deployable Camera

- 4.9 A further key project in this area is the Enforcement and Compliance Operations System (ECOS) project. Existing systems used by the Compliance, Policing and On Street (CPOS) Directorate to task officers and manage prosecutions are siloed, difficult to adapt and coming to the end of their life.
- 4.10 By refreshing these, introducing additional capability in service management, and ensuring they are provided from an integrated platform, the ECOS project would improve operations, streamlining the user experience and improving collaboration with our policing partners. This authority request would fund development of requirements, proof of concept and drafting of contract documentation, ready to commence procurement in summer 2021, following Integrated Assurance Review.



Figure 3: CPOS Compliance Officers and Metropolitan Police Service night operation. ECOS would free up more time for these types of operations.

Public Transport Technology

- 4.11 The projects supporting Public Transport maintain and develop technology to operate our public transport networks (including safety critical systems) and maintain customer experience (e.g. information systems).
- 4.12 A key deliverable in this area is iBus2. The current iBus system was installed in 2005 has been used for significantly longer than its design life. This system is core to bus operations, delivering real-time bus information to our customers and to traffic lights that give bus priority, as well as informing payment of mileage payments and reliability performance bonuses to bus operating companies totalling £2bn annually. The new system will ensure customer focus by automatically providing disruption information, and allowing faster implementation of service changes. It will also improve accuracy, removing pain points in service control, and be flexible enough to enable future innovation.
- 4.13 Procurement of the new system would commence in late 2020, following an Integrated Assurance Review including representatives of the Independent Investment Programme Advisory Group (IIPAG). This would ensure the system could be rolled out to over 9,500 buses, 90 garages and 42 service control centres in tranches by 2025.
- 4.14 The Cycle Hire Modernisation project is a key deliverable in 2022. The back office operating system was installed in 2010 and requires changes to ensure it is fit for use this decade. It also requires changes to introduce a new tariff structure. Upgrading the Santander Cycle Hire scheme would benefit the thousands of new users who chose this mode during the pandemic, making it more user-friendly and introducing e-bikes onto the scheme by spring 2022.

- 4.15 The current back office system supplier would be instructed to deliver changes in early 2021 (or earlier if feasible), following conclusion of design work, an Integrated Assurance Review.



Figure 4: Key successes for the Santander Cycle Hire in May 2020.

Surface Technology Programme Progress Update

- 4.16 Following creation in March 2019, a bottom-up review of technology systems used across Surface Transport was undertaken, to ensure visibility of contract end dates for key systems and develop a five-year prioritised pipeline of initiatives. This has introduced 22 new projects to the programme. Many projects are at an early stage, with requirements-gathering supporting preparation for procurement processes.
- 4.17 Some projects have already delivered benefits in key areas:
- Roads Technology:** the first versions of core SITS systems were deployed into operation in September 2020, creating the base from which to develop enhancements including multi-modal management of the road network;
 - Compliance, Enforcement and Safety Technology:** body worn video cameras delivered to over 200 front line colleagues in August 2020, with footage already being used to support prosecutions; and
 - Public Transport Technology:** an enhanced system for bus service planning was delivered in August 2020, allowing bus service planners to consider options for service changes in a few hours (previous labour-intensive systems took a few days) using a wider pool of data sources (e.g. demographics).
- 4.18 Since the Programme was created in 2019, projects have transferred in from other portfolios, including iBus2 (from Technology & Data). Projects have also

transferred out to other programmes, including Direct Vision Standard (to the Air Quality programme due to link with supplier Capita) and Taxi & Private Hire Licensing Re-Let (to Professional Services, to ensure organisational separation between taxi licensing and compliance activities).

- 4.19 In April 2020, 12 projects were paused due to the Coronavirus pandemic. Seven have since been re-mobilised, to ensure operationally-critical projects can be completed before critical dates (in many cases, before expiry of existing contracts). Five projects remain paused, with funding to re-mobilise these requested in the H2 funding submission. These paused projects are central to Surface Transport objectives, and while the pause will not immediately impact operations it has delayed delivery of benefits, including spend-to-save initiatives and journey time savings in SITS.

Financial Performance 2019/20

- 4.20 The Programme had Programme and Project Authority of £41.1m for 2019/20 against an actual outturn cost of £11.5m within that financial year. This underspend was driven by three primary factors:
- (a) **Cycle Hire Modernisation supplier performance:** The 2019/20 delivery plan assumed the full amount required to deliver this system would be spent within that year; this was not achieved as the incumbent supplier did not initially commit to delivering a core requirement for General Data Protection Regulation compliance. Following discussions with the supplier, a design study is now underway to confirm price and programme to deliver all essential requirements, and robust supplier management arrangements have been implemented. This request assumes delivery in Spring 2022, which is considered a more realistic schedule;
 - (b) **SITS delivery issues:** a key deliverable of the SITS programme is a new Real Time Optimiser system to replace the Urban Traffic Control system, used to manage 80 per cent of traffic lights in London. In summer 2019, the supplier advised they had underestimated resources to deliver this system in a city of London's scale, and delivery slowed while a revised contract was re-negotiated. The revised contract was signed in June 2020 with delivery to conclude in 2023; and
 - (c) **Optimism bias and forecasting inaccuracies:** Following creation of the Programme in March 2019, a series of financial performance reviews were instigated at a granular project-by-project level. These revealed a trend of optimism bias in delivery schedules, as well as inaccuracies in forecasting. Measures to address these include periodic cost reviews at project and programme level, and use of an over-programming allowance at programme level to accommodate movements in the delivery. This request assumes over-programming of around 25 per cent each year.

5 Benefits Management

5.1 The Programme contributes strongly to:

- (a) **A good public transport experience:** advances in technology provide an opportunity to deliver an improved public transport experience for our customers, by improved payment planning, scheduling and booking (where applicable) and ensuring continued provision of accurate real time information;
- (b) **Vision Zero:** technology is a key enabler of TfL’s Work-Related Violence and Aggression (WVA) Strategy, through delivery of body-worn video cameras, improved incident reporting, and support for lone workers. It also enables enforcement and compliance activities that make public transport safer and more efficient - which contributes to removing all deaths on our roads by 2041; and
- (c) **A Healthy Streets Approach:** the adoption of new technologies will support:
 - (i) a spatial approach to reduce car dependency. Technology will be used to provide a greater understanding of how road space is currently used, and then support approaches to use that space more intelligently and flexibly; and
 - (ii) encourage behaviours on London’s streets that increase the use of sustainable travel modes and decrease congestion.

5.2 Appendix 1 provides an overview of the key outcomes delivered through the Programme and charts their relationship back to the MTS objectives.

6 Financial Implications

6.1 An overview of the financial breakdown of the Programme is set out in Table 1:

Focus Area	Financial Authority 2020/21 – 2024/25	EFC 2020/21 – 2024/25	Programme and Project Authority 2020/21	Programme and Project Authority 2021/22	Expected Spend 2022/23	Expected Spend 2023/24	Expected Spend 2024/25
Roads	74.0	94.4	11.5	25.0	22.5	24.2	11.3
Compliance, Enforcement & Safety	46.3	55.4	6.9	18.9	15.5	12.5	2.0
Public Transport	180.3	184.0	9.8	25.2	35.0	40.8	73.2
Over-programming	(54.6)	(88.8)	(4.6)	(18.8)	(23.8)	(29.6)	(12.0)
Total	246	245	23.4	50.1	49.1	47.8	74.6

Table 1: Current Scope of Surface Technology Portfolio (All values in £ms)

7 Equalities

- 7.1 The Programme will be delivered in accordance with the Equality Act 2010 and all aspects of the Public Sector Equality Duty. Consideration is given to the need for an Equality Impact Assessment for each project.

8 Assurance

- 8.1 TfL Project Assurance has conducted an Integrated Assurance Review (IAR) on the proposed Programme in September 2020. The review did not raise any critical issues on the programme. Four recommendations were made, all of which are accepted within the management response and will be implemented subject to the approval of this paper.
- 8.2 The objective of the IAR was to assess the Programme's readiness to deliver its outcomes. The IAR followed set lines of inquiry to answer whether the Programme was sufficiently well managed for the Committee to award relevant Programme and Project Authority.

List of appendices to this report:

Appendix 1: Surface Technology Benefits

A paper containing exempt supplementary information is included on Part 2 of the agenda.

List of Background Papers:

Independent Investment Advisory Group Report

TfL Project Assurance Reports

Management response to IIPAG and TfL Project Assurance Reports

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Appendix 1: Surface Technology Benefits

Overall MTS themes the Surface Technology Programme will Support	A Healthy Streets Approach				A Good Public Transport Experience			
Specific MTS Policy Objectives that Surface Technology Programme will support	Adoption of Vision Zero for road danger in London	Reduction in Londoners dependency on cars	Prioritisation of space efficient modes of transport to tackle congestion	Healthy Streets Approach to deliver co-ordinated improvements to public transport and streets providing an attractive whole journey	Seek to make public transport network easier and more pleasant to use	Elimination of deaths and serious injuries from London's public transport services	Transform the quality of bus services making them faster, and more reliable	Seek to ensure London has a safe, secure, accessible, world class taxi and private hire service

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Sub element of Surface Technology Programme	Surface Intelligent Transport Systems (SITS)	Operations Safety and Compliance	Public Transport Technology
Sub element high level Objectives	<ul style="list-style-type: none"> To provide the capability to unlock significant additional effective capacity on the road network for the future. To enable and support delivery of a multimodal approach to transport management by using and allocating existing and new capacity in a way that responds to policy. 	<ul style="list-style-type: none"> Maintain current and put in place new technology based compliance regimes to ensure road and public transport safety standards can be effectively monitored and enforced. To provide a range of technological enforcement tools that support the drive to ensure London's road space can be effectively managed to promote reductions in congestion 	<ul style="list-style-type: none"> To maintain and improve the critical communications networks that enable the Surface public transport network to meet future demand, and allow effective management of safety critical situations. Allow for the sharing of real time service information with our customers. Ensuring this information is accessible and can be tailored to suite individual need.
Sub element high level outcomes	<ul style="list-style-type: none"> Faster incident detection and response Increased utilisation of under capacity areas of the road network to improve traffic flows The ability to be modally targeted in our management of the road network Improved road network information to the public, policy makers and operators to improve decision making 	<ul style="list-style-type: none"> Reduction in impact of planned and unplanned work events Reduction in number of customers being deterred from using sustainable methods of transport such as cycling and walking. Vehicles travelling on London's streets will adhere to the highest safety standards. 	<ul style="list-style-type: none"> Improved bus reliability and journey times Increase in bus customer satisfaction scores Elimination of deaths and serious injuries caused by London's public transport services Improved public transport information provided to the public improving decision making, satisfaction, and whole journeys.

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Programmes and Investment Committee



Date: 16 October 2020

Title: Docklands Light Railway – Rolling Stock Replacement Programme and Housing Infrastructure Funding

This paper will be considered in public

1 Summary

1.1 The purpose of this paper is to update the Committee on:

- (a) progress of the Docklands Light Railway (DLR) Rolling Stock Replacement Programme (RSRP) following the last submission to the Committee on 11 December 2018; and
- (b) negotiations with the Ministry of Housing, Communities and Local Government (MHCLG) regarding the Housing Infrastructure Fund (HIF) for the DLR HIF scope as described in this paper.

1.2 The paper on Part 2 of the agenda contains exempt supplementary information. The information is exempt from publication by 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 Recommendation

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

3 Background

3.1 The DLR RSRP includes delivery of 43 trains, an enhanced and expanded depot at Beckton, upgrades to the signaling, telecoms system and traction power and station improvements.

3.2 The construction and manufacturing activities under the DLR RSRP were subject to a 'safe stop' in March 2020 due to the Coronavirus pandemic. During the period of 'safe stop', design work continued at a slower pace. Construction and manufacturing activities have now recommenced and, while there has been up to three months of delay to the programme, the estimated final cost (EFC) of the project remains unchanged.

3.3 The DLR RSRP is also one of the projects being reviewed by KPMG, who are appointed by the Department for Transport (DfT) to carry out the DfT's audit of TfL's programme of works.

- 3.4 The Greater London Authority (GLA), working with TfL, submitted a successful bid to MHCLG. The successful bid creates a significant opportunity to build on the DLR RSRP and provide up to 14 additional DLR trains, as well as extending the Beckton depot for stabling and maintenance purposes and the purchase of associated land. This funding also contributes to a new DLR station at Thameside West (Thames Wharf) and enabling works to support a new development at Poplar depot, which will deliver up to 2000 new homes. An update on the status of the DLR HIF funding is provided in Section 5.

4 RSRP Background

- 4.1 Following approval by the Committee of Programme and Project Authority and Procurement Authority for the DLR RSRP, on 11 December 2018, Docklands Light Railway Limited (DLRL) entered into a manufacture and supply agreement (MSA) and a fleet support agreement (FSA) with Construcciones y Auxiliar de Ferrocarriles S.A. (CAF) on 11 June 2019 for the design, manufacture and supply of 43 new trains, including the provision of fleet technical support services and spares supply for 35 years.
- 4.2 DLRL also entered into a supplemental agreement with Thales Transport and Security Limited and Thales Canada Inc. to support the signalling requirements as well as letting a number of design and construction contracts for the additional sidings and maintenance facilities at Beckton depot.
- 4.3 The strategic case for the replacement of the existing trains focuses on the improved reliability that a newer, expanded fleet of trains will provide, improving service and costs along with meeting the continually strong and growing demand for public transport services in East London.
- 4.4 The DLR RSRP will deliver:
- (a) a new fleet of 43 walk-through, air-conditioned trains to replace the current B92 fleet (33 replacements with 10 additional trains) at the end of their design life and provide 25 per cent additional capacity over the outgoing trains. The first of the new trains will enter service in 2024, with full fleet introduction by 2026;
 - (b) an enhanced and expanded depot at Beckton to stable and service the new fleet. This will enable the new, fixed format, trains (the equivalent of three existing train car units), to be serviced and repaired in a new, on-site Maintenance Facility Building;
 - (c) a signaling upgrade to the Thales Automatic Train Operation system to support the new trains and functionality;
 - (d) a telecoms system upgrade to provide enhanced customer facing information;
 - (e) a traction power upgrade; and
 - (f) station improvements for evacuation and new platform to train interfaces.

5 RSRP Progress

Rolling Stock and Signalling

- 5.1 A strong relationship has been formed between CAF and the DLR project team and good progress to date has been made on the rolling stock designs (an illustration of which can be seen in figure 1). All contractual milestone payment activities, prior to the Coronavirus pandemic, have been achieved on time and the designs were Approved in Principle (AiP) by the DLR Change Assurance Panel (CAP) in January 2020. Detailed train design remains on schedule despite the impact of the Coronavirus pandemic, including feedback from a successful recent review by TfL's Independent Disability Advisory Group (IDAG).
- 5.2 CAF's manufacturing facility in Spain was closed during the Coronavirus pandemic lockdown and CAF's world-wide supply chain was also affected; this has impacted the forecasted start of manufacture. Impacts have been effectively mitigated to minimise disruption to the upcoming DLR RSRP production plans.



Figure 1: New Rolling Stock train design

- 5.3 Two signalling contracts were awarded to Thales (in July and October 2019); the first as a sub-contract through CAF, is to supply and integrate the on-board control systems for the new trains. The second contract, directly with TfL, is to supply system improvements to the DLR signalling software sub-systems (to support the new fleet), which achieved its preliminary design review milestone on 9 April 2020 in line with the programme.
- 5.4 Final designs have now been submitted for review and progress continues to be good under the Thales contracts. However, Thales is involved in many TfL (and other large) infrastructure projects, and consequently the project team needs to retain focus in this area.

Beckton Depot

- 5.5 Enabling works (including site clearing and ground works) to the north-west of the Beckton site (see figure 2), in preparation to lay the new sidings, were completed by 27 January 2020 achieving a key 2019/20 milestone. The end-state plans for the northern and southern sidings can be seen in figure 3.

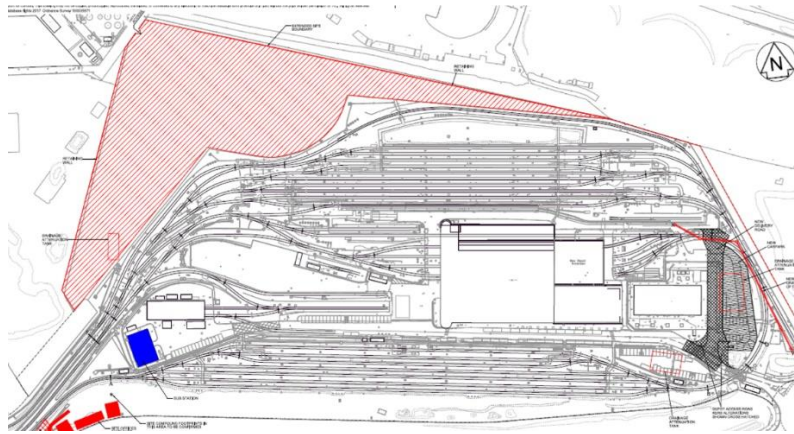


Figure 2: Enabling Works Area Beckton Depot

- 5.6 The northern sidings designs (see figure 3) were approved by DLR project engineering in March 2020 and have now been accepted by CAP. As a result of the Coronavirus pandemic there was a four-month pause in the delivery of depot projects.
- 5.7 This has resulted in a change of delivery strategy for the assembly of trains 1 and 2 as the maintenance building will now be completed after the delivery of these trains. The depot works will be completed during the dynamic testing of these trains and before the delivery of trains 3 to 43. A range of alternative locations for the assembly of trains 1 and 2 on the network have been identified and option selection to determine the optimal solution is underway.

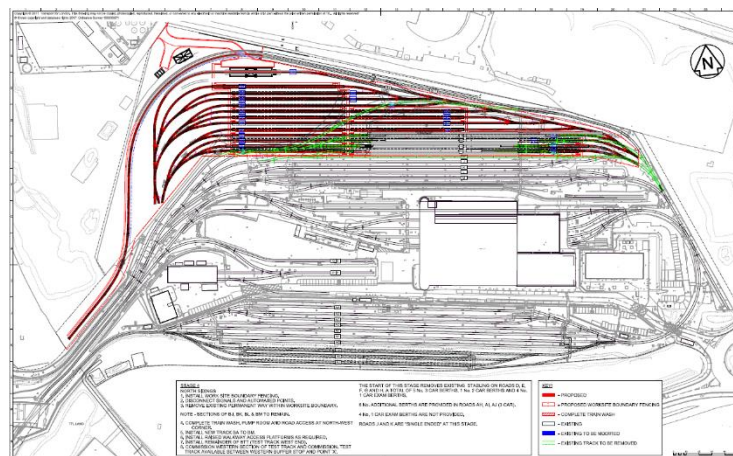


Figure 3: Future Northern sidings Beckton Depot (and new Southern Sidings (not in figure 2))

- 5.8 To mitigate further delays to the construction of the northern sidings, which is on the programme critical path, a decision was recently taken to postpone the procurement for the southern sidings which were to be delivered in parallel to the maintenance building. Bidders were informed of TfL's decision and the need to postpone the works due to the impact of the Coronavirus pandemic on TfL's finances. The postponement of this element of the works not only defers approximately £8m of expenditure into future years, helping TfL's financial pressures, but it also removes the chances of these works impacting on the northern sidings (i.e. the critical path of the programme).

- 5.9 Planning permission from the London Borough of Newham was granted in 2018 for the upgraded Beckton Depot, subject to satisfying certain conditions. Importantly, the last of these conditions (approval of the drainage strategy) was satisfied in March 2020, allowing for full construction on the site to start.

Infrastructure

- 5.10 A power upgrade contract was awarded to UK Power Networks (UKPN) to increase the power supply at Beckton Substation in February 2019. Working collaboratively with UKPN, a shorter, lower risk route for the new cable from Barking to Beckton has been identified and additional time has been given to UKPN to work up a detailed proposal on this in order to realise the potential cost saving. There is no impact on the overall programme.

Focus Areas

- 5.11 Over the next few months careful management of the key challenges (below) will remain a focus for the project team to make sure any delays are mitigated, and activities stay on schedule by:
- (a) ensuring that delays experienced to date on the northern sidings (which is on the critical path) get no worse and any further Coronavirus pandemic impacts are understood and managed appropriately;
 - (b) finalising a solution for the assembly of trains one and two in the depot;
 - (c) ensuring that the train design continues to receive the necessary focus to minimise any significant future required changes that would incur higher costs; and,
 - (d) ensuring that the DLR RSRP is appropriately prioritised by Thales to avoid potential delays on the signalling programme.

6 DLR HIF Scope

- 6.1 In the 2018 Autumn Budget, the Chancellor of the Exchequer announced that the GLA had been successful in bidding for part of the government's £5bn HIF, with £291m allocated to the DLR's Accelerated Growth Programme (now called DLR HIF bid).
- 6.2 The DLR HIF scope comprises four elements:
- (a) an additional 14 DLR Trains (to be procured under the MSA pursuant to an existing option to purchase more trains);
 - (b) expansion of the Beckton DLR Depot, including the purchase of new land to the south of the existing site;
 - (c) a new DLR Station at Thameside West; and
 - (d) enabling works at Poplar depot to unlock an oversite development opportunity for new housing and a connecting bridge to Canary Wharf.

- 6.3 The strategic case for the DLR HIF focuses on the housing it enables in line with the Mayor's Transport Strategy (MTS) and London Plan, being a flagship example of 'good growth'. The DLR HIF scope is one of the largest single contributions that TfL can make to delivering the New Homes and Jobs objectives of the MTS by supporting or enabling the delivery of up to 18,380 homes in total – including up to 4,500 homes directly delivered by the GLA at Thameside West and up to 2,000 homes by TfL at Poplar.
- 6.4 In addition, by providing increases to new train capacity and frequency, particularly on the fast-growing routes to Stratford, the DLR HIF scope will also make a strong contribution to the Good Public Transport Experience theme of the MTS. It will make orbital travel much easier and will target Stratford and Lewisham as strategic interchanges.
- 6.5 Under the GDA proposed by MHCLG, TfL is required to spend all HIF funding by 31 March 2024, although it includes delivery milestones both before and after this date. The HIF funding is also contingent on satisfying certain pre-conditions, which are linked to TfL's wider finances.
- 6.6 Until there is greater clarity on the financial support available from Government, TfL is not currently able to meet all of the pre-conditions in the GDA. Accordingly, TfL is unable to enter into the GDA at this time. Further information on this is provided in the paper on Part 2 of the agenda. TfL will continue negotiating with MHCLG and will seek approval to enter into the GDA at the earliest opportunity if agreement can be reached and clarity is provided on the financial support available from Government.

7 Finance and the effects of the Coronavirus Pandemic

- 7.1 Programme and Project Authority of the amount stated in the paper on Part 2 of the agenda was approved by the Committee on 11 December 2018 for the DLR RSRP. Over the course of the last eighteen months, the costs for several elements of the programme have been revised up and down. However, despite the reported delays to the programme following the Coronavirus pandemic, the net result of these movements and counter-movements means that the EFC of the DLR RSRP programme remains unchanged.
- 7.2 From an operating cost perspective, the business case is being revisited to test the sensitivity of the pre-Coronavirus pandemic assumptions against the emerging realities of the "new normal" (including passengers having a lower tolerance for overcrowding and people working from home or more flexibly). A sensitivity test on the basis that demand only recovers to 80 per cent of previous future forecasts is being used.
- 7.3 Early results from this sensitivity test and further financial details for both the DLR RSRP and DLR HIF are contained in the paper of Part 2 of the agenda.

8 Delivery

- 8.1 The delivery strategy for the DLR RSRP remains in line with the approach set out in the paper submitted to the Committee on 11 December 2018. TfL's Investment Delivery Planning Directorate is sponsoring the programme and it is being delivered through the Major Projects Directorate.
- 8.2 In comparison to the December 2018 programme, the most significant changes are delays of up to six months of the depot construction (including a delay of four months due to the impact of the Coronavirus pandemic) and a deferral of the southern sidings programme. Despite these changes, the introduction of the new trains is still expected to commence in late 2023/24 and all trains are expected to be in service by 2025/26; three months later than expected when the CAF contract was awarded. Key milestones for the DLR RSRP programme are shown in Table 1 below.

Key Milestone	Pre-Covid Target Date	Forecast Date
Detailed Train Design Phase Complete	Nov 2020	Nov 2020
Provisional Acceptance First Train into Passenger Service	Dec 2023	Feb 2024
Provisional Acceptance Forty Third Train into Passenger Service	Nov 2025	Feb 2026

Table 1: RSRP milestones

Key Risks

- 8.3 The main risk to both the DLR RSRP and agreement of the GDA for the DLR HIF funding is the continuing uncertainty of the long-term funding available to TfL across all of its projects.
- 8.4 For the DLR RSRP programme, the other main risks to the programme can be seen in Table 2 below.

Risk Description	Mitigation
Rolling Stock - Design Review Impact to Train Design	<ol style="list-style-type: none"> 1. Written agreement sought from all stakeholders at each stage 2. Early engagement of end users through workshops in Spain 3. Workshops and agreement with IDAG 4. Confirm agreement to design through use of train mock-up.
Rolling Stock - Impact of new train design on existing DLR assets	<ol style="list-style-type: none"> 1. Specification of train to where possible not impact existing assets 2. Detailed dynamic gauging at preliminary and detailed design 3. Dynamic load modelling and structures impact assessment 4. Buffer stop assessment 5. Independent impact assessment
Depot - Delivery Integration	<ol style="list-style-type: none"> 1. Migration and Integration dedicated workstream to ensure all elements considered and developed to allow decommission, handover and DIS between and at the end of each project. 2. Production of detailed migration plan and matrix utilising lessons learned from Neasden. 3. Appointment of Lead Design Organisation 4. Production of detailed Interface Control Documents (ICDs).
Rolling Stock – Signalling / Train Integration	<ol style="list-style-type: none"> 1. Subcontract and ICD design pre contract 2. Contract step in rights 3. Continuous performance review of subcontract
Stations - Platform Interface - Platform mirror and monitor positions	<ol style="list-style-type: none"> 1. Re-survey of existing assets 2. Dynamic platform modelling assessments

Table 2: RSRP Top 5 Risks and Mitigations

9 Equalities Implications

- 9.1 The new DLR rolling stock will be an improvement on the existing train design. On-board audio and visual information will be better than the existing. In addition to wheelchair spaces, trains will have multi-use areas which will accommodate pushchairs and bicycles.
- 9.2 As with the current DLR fleet, train-to-platform access will be compliant with the Rail Vehicle Accessibility (Non-Interoperable Rail System) Regulations 2020.

9.3 An Equality Impact Assessment (EqIA) has been undertaken for the new DLR rolling stock and there were no adverse comments. If the GDA for the DLR HIF funding is successfully concluded, EqIAs for the other work streams within the DLR HIF Scope will be undertaken at the appropriate time in the project lifecycle.

10 Assurance

10.1 In April 2020, an Internal Assurance Review (IAR) was carried out (with Independent Investment Programme Advisory Group (IIPAG) in attendance for the final review) considering progress on both the DLR RSRP and the DLR HIF programme. Seven recommendations were made and accepted by the project team of which none were deemed critical.

10.2 Recommendations focused on ensuring that the DLR RSRP programme and, if it proceeds, the DLR HIF programme are fully integrated, risks are well managed and key future decisions and timelines are set out and clearly understood. Due to the resourcing restrictions following the impact of the Coronavirus pandemic some actions have not been completed by their original forecasted dates. However, importantly, actions relating to the key risks of entering the GDA for the DLR HIF funding have been assessed and are being managed.

10.3 On 1 September 2020, a follow up review of progress was carried out on both programmes. Only one further recommendation was made at this stage (accepted by the project team) concerning assessment of the recent changes in TfL services demand on the business case. The IAR and IIPAG findings, along with the project team's management response, are set out in more detail in the paper on Part 2 of the agenda.

List of Appendices to this report:

A paper containing exempt supplemental information is included on Part 2 of the agenda.

List of Background Papers:

None

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Programmes and Investment Committee



Date: 16 October 2020

Item: London Underground Major Stations Programme

This paper will be considered in public

1 Summary

LU Major Stations Programme				
Existing Financial Authority	Estimated Final Cost (EFC)	Existing Programme and Project Authority	Additional Programme and Project Authority Requested	Total Programme and Project Authority
£2,209m	£2,206m	£2,231m	£0	£2,231m

- 1.1 This paper provides an update on the progress of the London Underground (LU) Major Projects Stations Programme (the Programme) and requests additional Procurement Authority for the Bank Station Capacity Upgrade.
- 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 supplementary paper on Part 2 of the agenda approve additional Procurement Authority for Bank Station Capacity Upgrade, as detailed in the paper on Part 2 of the agenda.**

3 Background

- 3.1 In the Mayor's Transport Strategy, the Mayor states his intent to improve the transport system to ensure a world-class experience. The Programme has been established to effectively deliver major enhancements to stations in order to; provide much needed step-change in capacity; to ensure that operational resilience is maintained at key interchange stations in the medium to long term; safeguard access to and benefits from upgraded lines; and to support local area regeneration, housing and job creation.

3.2 The projects contained within the Programme are at various stages of the delivery lifecycle. Since the last update to the Committee in 2019, the Programme has been reset to reflect the new projects that have come into the Programme following the successful completion of Victoria, Bank Bloomberg Place, Bond Street and Tottenham Court Road. HS2 Euston (LU) station (funded by HS2) and the Elephant & Castle Station Capacity Upgrade projects have been added into the Major Stations Programme.

4 Strategic Case

- 4.1 As London grows (despite shorter term impacts of the Coronavirus pandemic), the capacity of our stations must keep pace. Major station upgrades are critical to the efficient operation of the network as well as for planned growth. Planned increases in capacity of train services, such as the uplift in service to the Piccadilly line as part of the Piccadilly Line Upgrade (PLU), are best optimised if accompanied by increases in station capacity at some locations, for example Holborn.
- 4.2 In addition to capacity, the Programme enables improvements to be made to station safety, accessibility, easing interchange, with inclusive designs providing lifts and step-free access (SFA). Where appropriate, the Programme also enables commercial opportunities including over-station developments (OSD), retail and other increased revenue.
- 4.3 The individual projects in the Programme contribute to wider TfL objectives listed in the table below. Each project has an approved (and regularly updated) business case that demonstrates benefits, which contributes to these objectives and quantified value.

Major Projects Station Objectives
Increase capacity
Reduce journey times and congestion
Improving the quality of access, interchange and ambience
Improving emergency fire and evacuation protection measures
Step-Free Access

- 4.4 The Programme is comprised of the projects in the table below. An update on the progress of these projects is described in Section 6 respectively. Project progress photos are shown in Appendix 1.

Major Projects Stations include:

Bank Station Capacity Upgrade (BSCU) – to be completed in 2022
Northern Line Closure Readiness (NLCR) – 2021/22
Elephant and Castle Station Capacity Upgrade (ECSCU) – 2029
High Speed 2 – Euston LU Station (HS2) – 2030-35
Camden Town Station Capacity Upgrade (CTSCU) – subject to future funding
Holborn Station Capacity Upgrade (HSCU) – subject to future funding

- 4.5 The grouping of these projects in a programme enables greater sharing of best practices, lessons learned and opportunities to aggregate delivery efficiencies.

5 Progress

- 5.1 This section summarises progress made since the last update to the Committee in March 2019.

Bank Station Capacity Upgrade (BSCU) (see Appendix 1 for progress photos)

- 5.2 In line with Government guidance, TfL brought all project sites to a temporary Safe Stop to limit the spread of the Coronavirus pandemic, with construction activity paused between 24 March 2020 and 26 May 2020, aside for limited specifically approved activities needed to keep the worksites in a safe condition. The BSCU project has remobilised following extensive reconfiguration of the site including implementation of one-way systems, additional welfare facilities and updated working procedures so that social distancing guidelines can be followed. The project is fully mobilised and has returned to pre Coronavirus pandemic activity levels.
- 5.3 All four of the new escalator barrels in the new parts of the station are now completed. The last of these being from the Northern line to the Docklands Light Railway. All the additional new cross passages at the Northern Line level are now complete.
- 5.4 The new station entrance on Cannon Street continues to take shape with interior wall construction and floor screeding completed and works to fit out the mechanical and electrical services now commenced. We have taken delivery into our storage facility 9 of the 12 new escalators that have been manufactured. These are now undergoing final preparation in readiness for installation in 2021.
- 5.5 The project Estimated Final Cost (EFC) is £701m.

Northern Line Closure Readiness

- 5.6 The BSCU project includes a new tunnel for southbound trains to run on the Northern line through Bank station (see Appendix 1). This creates wider platforms for the Northern line at the station. The new tunnel has been constructed away from the existing southbound tunnel but will need to be ‘tied in’ to the existing tunnel to

the north and south of the station. To connect the existing southbound tunnel with the new tunnel through the station, a closure of the Northern line (Bank branch) between Moorgate and Kennington will be required for approximately four months.

- 5.7 The timing for the temporary closure has not been finalised yet but several pan TfL initiatives are required to successfully re-route, re-time and re-mode customers to minimise disruption to journeys. To support this, a programme management team has been setup within the Programme to plan, co-ordinate and deliver plans to mitigate the impact to our customers including a comprehensive engagement and Travel Demand Management campaign. The current EFC including both capital and operational expenditure is £9.1m.

Elephant and Castle Station Capacity Upgrade (ECSCU) (see Appendix 2 for progress photos)

- 5.8 Elephant and Castle station is a Zone 1/2 boundary station and has Northern line and Bakerloo line services. Each line has a separate ticket hall at street level and interchange within the station.
- 5.9 Elephant and Castle has been identified as an Opportunity Area in the London Plan, with a total of around 5,000 new homes either implemented or planned for the area. The ECSCU project has been designed to support this wider development.
- 5.10 ECSCU is a congestion relief and SFA scheme currently at Concept Design stage. It will deliver a new entrance with both escalators and lifts to reach new passenger connections to the Northern line.
- 5.11 In July 2019, TfL endorsed safeguarding for a future integrated station at Elephant and Castle enabling the Bakerloo Line Upgrade & Extension (BLUE) project to connect to the new ticket hall in the future.
- 5.12 The scheme includes a new station box to be built by a third-party developer (Delancy). The developer will then deliver the mixed use development above, supported by the new station box. TfL will be responsible for the construction of new underground connections (concourse and passageways to the existing platforms) and fit out of the new station box and entrance.
- 5.13 TfL and the developer are in the process of negotiating the terms of a Development Agreement to cover the parties respective' roles and responsibilities.
- 5.14 Once a Development Agreement is in place, the London Borough of Southwark require TfL to enter a supplementary Section 106 agreement targeted for March 2021, which will commit TfL to open the new station entrance.

Holborn and Camden Station Capacity Upgrades

- 5.15 Both schemes are currently on hold as TfL are reliant on steady and sustained investment from the Government to support major capital investments.
- 5.16 Holborn station is a key interchange on the Central and Piccadilly lines and suffers from serious congestion in both peak periods.

- 5.17 Camden Town is a key interchange that serves both branches of the Northern line. Since the last update to the Committee, TfL has safeguarded the Camden Town scheme by acquiring land (the site of the proposed new station entrance) from the London Borough of Camden. TfL will continue to explore alternative methods to deliver the project benefits.

Completed Projects

- 5.18 Since the last update to the Committee, Bank Bloomberg Place, Tottenham Court Road, Bond Street and Vauxhall projects have now been successfully completed, delivering the benefits and outcomes, as planned, when originally initiated.
- 5.19 The Victoria Station Upgrade (VSU) delivered significant improvements including a new North ticket hall (at Cardinal Place) and an increase in the size of the South ticket hall by 50 per cent. Customers have also benefitted from reduced journey times by an average of three minutes by using the new Cardinal Place entrance. The installation of additional ticket machines has also removed queues throughout most of the day.
- 5.20 VSU has completed all main works and is currently completing a handful of snagging issues and closing out third-party agreement obligations. This project is expected to be closed later this year.

6 Assurance

- 6.1 A TfL Project Assurance (PA) and Independent Investment Programme Advisory Group (IIPAG) Assurance Review of the Programme was held across August and September 2020. A small number of recommendations were made and are being addressed as detailed in the management response. In addition, project-level Assurance Reviews were carried out on a number of projects within the Programme as set out in the Programme's Integrated Assurance Plan.
- 6.2 The Integrated Assurance Plan for the Programme has been agreed with TfL PA and this plan details the project-level reviews that will take place over the course of the next year.

List of appendices to this paper:

Appendix 1: Project Progress Photos (BSCU)

Appendix 2: Project Design Images (ECSCU)

A paper containing exempt supplemental information is included on Part 2 of the agenda.

List of background papers:

Independent Investment Advisory Group Report

Project Assurance Reports

Management response to IIPAG and Project Assurance Reports

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Number: 07725609161

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Appendix 1: BSCU Project Progress Photos



Figure 1: Moving walkway Central line-Northern line interchange link

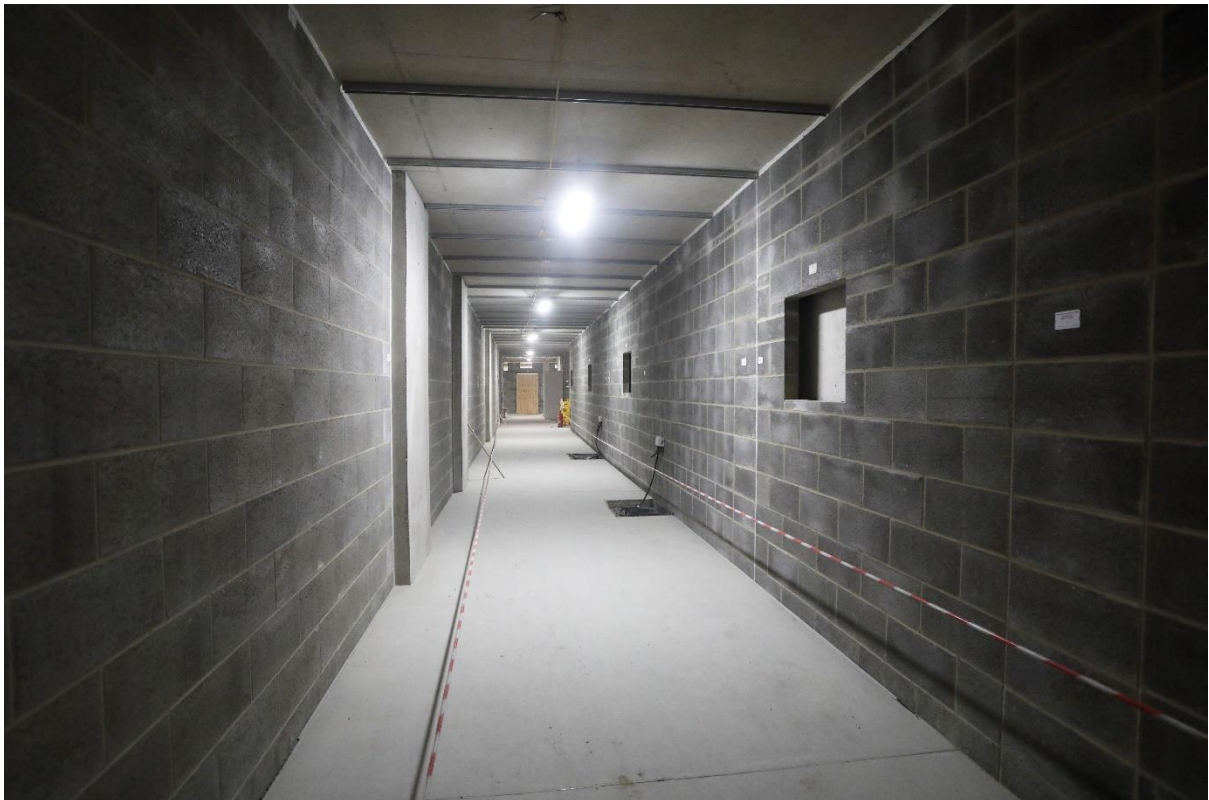


Figure 2: Fit out, new block work



Figure 3: Installation of services below new platform

Appendix 2: ECSCU Design Images



Figure 1: Station portal entrance, escalators and lifts leading down to ticket hall



Figure 2: Ticket hall area – Unpaid side



Figure 3: Ticket hall area – Paid side showing integrated end state use

Programmes and Investment Committee



Date: 16 October 2020

Item: HS2 Update

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to update the Committee on the status of the High Speed 2 (HS2) programme and proposals being considered by the Department for Transport (DfT). Members were last updated in October 2019 and a paper was requested following the conclusion of the Oakervee Review. This paper seeks to obtain authority from the Committee to expand the list of TfL officers with delegated authority to sign agreements on behalf of TfL (see Section 6 and Table 2).

2 Recommendations

- 2.1 The Committee is asked to note the paper and authorise TfL officers to agree and execute documents as set out in this paper.**

3 Background

- 3.1 HS2 is a planned high-speed railway linking London, Birmingham, the East Midlands, Leeds, Sheffield and Manchester. The London terminus will be at Euston and a new station will be built at Old Oak Common (OOC), providing connections to the Elizabeth line.
- 3.2 HS2 is being delivered by HS2 Limited on behalf of the Secretary of State. While HS2 will bring significant benefits for people travelling to and from London, the construction presents risks to TfL operations, infrastructure and passengers. TfL must ensure that the transport system can support this new infrastructure and that its delivery and operation is not to the detriment of other services in London or compromises safety.
- 3.3 HS2 also represents a significant opportunity for regeneration, with both Euston and OOC defined as Mayoral opportunity areas with scope to deliver Good Growth, Healthy Streets and Vision Zero objectives.
- 3.4 TfL has multiple interests in the HS2 programme and has a key role in design assurance, asset protection, construction coordination and stakeholder management. Responsibility for delivery within TfL was transferred to the Major Projects Directorate (MPD) in July 2019 following a recommendation for a programme management approach by the Independent Investment Programme Advisory Group in 2018. TfL has staff working on the programme in sponsorship, project management delivery, engineering, communications, commercial, planning and other support functions.

Protections

- 3.5 The High-Speed Rail (London to West Midlands) Act 2017 was granted Royal Assent in February 2017. During the parliamentary process, TfL and the Secretary of State negotiated the 2014 Protective Provisions Agreement (PPA) which governs how HS2 Limited must work with us when undertaking works that impact our infrastructure, operations or customers. The PPA requires HS2 Limited to indemnify us for all costs, losses and expenses including compensation for bus delays and London Underground (LU) closures.
- 3.6 We have also secured further protective undertakings in relation to technical aspects of the project. For example, the TfL standards and guidance should be applied for any works on our infrastructure.

4 HS2 Programme Update

Euston

- 4.1 The current design proposals at Euston station include several aspects relating to TfL including:
- (a) upgrades to Euston and Euston Square Underground stations with a new ticket hall, new entrances and passenger connections;
 - (b) a new relocated traction power substation and ventilation shaft;
 - (c) new pedestrian links between Euston and Euston Square stations;
 - (d) a new and improved bus station;
 - (e) enhanced pedestrian crossings and wider footpaths;
 - (f) innovative cycle hubs; and
 - (g) improved streets in the surrounding area in line with TfL's Healthy Streets principles.
- 4.2 We have been working closely with HS2 Limited to support its early works programme to minimise disruption on the road network and our operations.
- 4.3 Design reviews continue for the TfL elements of the new HS2 Euston station, including the LU substation and ventilation building. We are working with HS2's construction partner in preparation for their commencement of RIBA 4 (detailed design) and main works construction in late 2020.
- 4.4 We are also working with Network Rail on the 'Redevelopment of Euston Conventional Station' (RECS) project, which aims to improve the existing National Rail station, as well as engaging with Lendlease who have been appointed by the DfT to develop the emerging masterplan for Euston and proposed oversight development (OSD).

Old Oak Common (OOC)

- 4.5 The new station at OOC will create interchanges between HS2, the Elizabeth line (EL) and Great Western services. TfL is working with HS2 Limited on its designs and, while it is not intended that we will take ownership of assets at OOC, we are primarily concerned with the interchange to the new EL station and Surface modes.
- 4.6 HS2 Limited has advanced its designs for OOC Station to RIBA 4 (detailed design) and the Surface Transport Interchange designs to RIBA 3 (concept design).
- 4.7 We also plan to enter into an Asset Protection Agreement with HS2 Limited to protect our interests relating to the EL depot prior to the commencement of major HS2 works along the site perimeter at OOC by the end of 2020.
- 4.8 TfL is working closely with DfT, Network Rail and HS2 Limited to ensure measures are in place to minimise our operational risks resulting from the planned use of OOC as a temporary terminus in London due to anticipated programme delays at Euston. This has included confirming our requirement for 24 EL trains per hour (tph) and optimising future EL timetables – these measures will ensure we have sufficient capacity in place to minimise passenger congestion both at OOC and across the wider network.

Coronavirus pandemic

- 4.9 To date the HS2 programme has not suffered any material delay or setback due to the coronavirus pandemic, with project teams in both organisations successfully transitioning to remote working and continuing to collaborate.
- 4.10 HS2 Limited's construction partners carried out a safe-stop of all their London construction sites in March 2020, but the majority were back in operation by the end of April following a carefully planned and risk-based review.
- 4.11 HS2 Limited has been made aware of the Mayor's emerging Streetspace Programme. This has included aligning HS2 traffic management to the Mayor's Streetspace proposals in Euston and Hampstead Road.

TfL's Risks and Issues

- 4.12 TfL's key risks, issues and proposed mitigation actions are set out in Table 1. Our risks and issues are managed and reported to our internal HS2 and stations meetings. We also undertake periodic risk reviews both internally and with HS2 on shared risks and issues.

Table 1: TfL’s Programme Risks and Issues Relating to the HS2 Programme

Risk/Issue	Mitigation	Impact	Likelihood
Lack of Programme information restricts TfL’s ability to plan and resource	<ul style="list-style-type: none"> Continued engagement with HS2 planners Develop and agree Specified Works Tracker Continued engagement with HS2 Sponsors and Project Managers 	High	Ongoing issue
Unplanned Disruption caused by HS2 during construction	<ul style="list-style-type: none"> Review HS2 Limited construction methodology through Blue Book Develop contingency plans and strategy for closures 	High	High
Euston SRO Study impact on TfL modes	<ul style="list-style-type: none"> Engagement in SRO study meetings to communicate high-level impacts on TfL Further technical engagement with HS2 supply chain on design changes Pre-application planning discussions with Lendlease 	High	High
HS2 Limited may not agree to bus mitigations and to pay for bus revenue losses	<ul style="list-style-type: none"> Develop joint bus mitigation process in line with PPA obligations and include in Blue Book Monitor impact on bus performance 	High	Medium
Agreements are not agreed in time to enable delivery	<ul style="list-style-type: none"> Jointly develop forward plan of agreements required Produce programme for each agreement 	High	Low
HS2 lean assurance method and self-assuring supply chain may not meet TfL requirements	<ul style="list-style-type: none"> Assurance workshop to understand assurance process Internal assurance training and awareness of TfL role Audit HS2 assurance in accordance with our S1538 standard 	High	Low

The Blue Book

4.13 We are continuing to work with HS2 Limited and its supply chain to finalise the Blue Book suite of management processes that will define long-term working arrangements on the project. The Blue Book does not replace or take precedence in relation to the PPA or any asset protection agreement TfL has in place but will be instructed to the HS2 supply chain from autumn 2020. It will provide consistency across ten joint processes covering design development, work package delivery, project controls, engineering, commercial and communications.

5 The Oakervee Review (February 2020)

- 5.1 The Government initiated the Oakervee Review¹ to inform whether and how to proceed with HS2 ahead of the Notice to Proceed decision for HS2 Phase One in April 2020.
- 5.2 The Review concluded HS2 must be progressed due to the need for more capacity and reliability on the rail network. It recognised there were no ‘shovel-ready’ alternatives, and the serious consequences for the UK construction industry and its supply chain should the programme be cancelled.
- 5.3 The key recommendations affecting London included:
- (a) there needs to be a single plan for the overall Euston project. A Senior Responsible Officer (SRO) Study with DfT as client should explore the efficiency of a future Euston Station including options to simplify the approach to the station;
 - (b) one organisation should bring together all the stakeholders and be responsible for the overall development and governance of the Euston project. Given the complexity of the Euston project, this organisation should not be HS2 Limited;
 - (c) OOC should act as a Temporary Terminus until Euston Station can be delivered (dependant on SRO Study, likely to be for two-to-five years);
 - (d) rigorous cost management and controls should be put in place to reduce costs and avoid ‘gold-plated’ designs whilst maximising commercial opportunities at stations; and
 - (e) the high capacity, high frequency and high-speed network has influenced decisions, including the number of platforms required - there could be reduction in cost from some compromises.

The Euston SRO Study

- 5.4 In response to the Oakervee Review the DfT instructed HS2 Limited to investigate an alternative design that assumes a reduced number of HS2 platforms and smaller station footprint whilst better meeting key stakeholder aspirations and looking at options to maximise OSD. This SRO Study workstream undertook a rapid high-level feasibility review over a 12-week period this summer with stakeholders including TfL, Network Rail, Lendlease and London Borough of

¹ Oakervee Review Report:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/870092/oakervee-review.pdf

Camden providing input into the study. A decision in principle on which of four design options to proceed with is expected by DfT in the autumn.

- 5.5 The outcome of the SRO Study could be significant for TfL as some options could have major implications for the existing bus station, the LU interchange and Crossrail 2 safeguarding as well as increased travel demands from OSD. We will need to work through these issues in detail with HS2 Limited and other stakeholders once a decision has been taken.

Changes to Euston governance

- 5.6 A new 'Euston Partnership Board' has also been established, with TfL's Director of City Planning attending. This was set-up to improve the integration and governance of the three main projects at Euston (HS2, OSD and RECS). Further work is ongoing to set up a new organisation to oversee the delivery of these projects and we will have the opportunity to feed into these discussions over the coming months.

Old Oak Common as a temporary terminus

- 5.7 HS2 Limited requested that TfL undertake modelling to assess if HS2 could temporarily operate services to OOC whilst Euston was being constructed. The analysis focussed on the impact of changes in passenger demand on the Elizabeth line services and at key station. It concluded Elizabeth line services at 24 trains per hour between OOC and Paddington should in theory provide capacity for projected 2031 demand from HS2 services of six trains per hour as well as demand from Great Western Mainline services.
- 5.8 There are several key issues that need to be understood in relation to using OOC as a temporary London terminus until Euston station is complete. These issues include duration (likely to be two-to-five years, but will be confirmed by Euston SRO Study), uplift of Elizabeth line trains to 24 per hour, impact on other TfL modes, and how HS2 and Network Rail are considering if station requirements need updating. We will be working through these issues in the coming months.

6 Governance

- 6.1 The programme currently reports to the Committee and secures Project and Programme Authority as part of the Healthy Streets Programme.
- 6.2 The TfL Senior Responsible Officer for the HS2 Programme is the Director of Investment Delivery Planning. MPD has also been appointed as TfL's programme management team on the programme with responsibility for delivery and budget.
- 6.3 In May 2014, the Finance and Policy Committee (as was) authorised specified TfL officers to (see Appendix 1 for full paper):

"in accordance with authority delegated from the Board on 26 March 2014, authorises the TfL Officers defined in paragraph 2.2 authority to:

(i) oppose any aspects of the High Speed Rail (London to West Midlands) Bill on behalf of Transport for London by lodging petitions against it;

(ii) obtain the written consent of the Greater London Authority to such petitions, as required by the Greater London Authority Act 1999;

(iii) finalise the terms of such petitions prior to being lodged; and

(iv) do all such other things they consider necessary or desirable to facilitate the satisfactory conclusion of the matters relating to protection of Transport for London's assets as described in this paper."

6.4 Due to organisational changes since 2014, as well as the HS2 Programme moving from planning to delivery, it is proposed to update the list of TfL officers with delegated authority as set out in Table 2 below. This will enable additional TfL officers where necessary to authorise entering agreements with HS2 Limited using the authority described above.

Table 2: Proposed Changes to TfL Officers with Delegated Authority

Existing TfL Officers	Proposed TfL Officers
Commissioner	Commissioner
Managing Director Finance	Chief Finance Officer
Managing Director Planning	Director City Planning
General Counsel	General Counsel
	Director of Operational Readiness, London Underground
	Director of Investment Delivery Planning
	Director of Major Projects Directorate

6.5 The delegation of authority to TfL officers to enter into agreements with HS2 set out in Table 2 does not extend or vary the level of authority in Standing Orders.² Examples of the types of agreements to which this will apply include the Bus Letter Agreement and the LU Substation Commercial Agreement.

7 Assurance

7.1 An internal project assurance review of the HS2 programme was undertaken in September 2019. There were no critical issues identified and all the recommendations from the reports have been addressed, as detailed in the management response.

7.2 TfL Project Assurance will maintain its continuous assurance across the lifecycle of the HS2 programme. This will include regular attendance of TfL's HS2 Programme Board and Portfolio Investment Meetings to monitor progress and where appropriate, undertake targeted assurance reviews in advance of key decisions.

² TfL Standing Orders - <http://content.tfl.gov.uk/tfl-standing-orders.pdf>

List of appendices to this paper:

None

List of background papers:

Paper submitted to the Finance and Policy Committee, 13 May 2014

Contact Officer: David Rowe, Head of Major Projects Sponsorship

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Date: 16 October 2020

Item: Northern Line Extension Update

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to update the Committee on the progress of the Northern Line Extension (NLE) project.
- 1.2 A paper is included on Part 2 of the agenda, which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

2 Recommendation

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

3 Background

- 3.1 The NLE will provide a 3.2km twin tunnelled extension of the Northern line Charing Cross branch from Kennington to a terminus station at Battersea Power Station via an intermediate station at Nine Elms. This new piece of transport infrastructure is a catalyst for the regeneration of the Vauxhall Nine Elms Battersea Opportunity Area, supporting the creation of new homes and jobs.
- 3.2 There are over-site developments (OSD) at both stations. The Battersea OSD is being delivered by Battersea Power Station Development Company (BPSDC) and the OSD at Nine Elms is expected to be carried out through a joint venture between TfL and Grainger.
- 3.3 The benefits of the NLE include:
 - (a) a significant reduction in public transport journey times and increased public transport accessibility in the Opportunity Area;
 - (b) congestion relief on the existing Victoria line and the Northern line south of Kennington;
 - (c) congestion relief at Vauxhall station; and

(d) congestion relief on some national rail services to/from Vauxhall and Waterloo.

3.4 The NLE supports wider regeneration benefits of 20,000 new homes and 25,000 new jobs in the area it serves. The growth enabled by the NLE over the years following the start of services has been re-modelled using the latest planning information.

3.5 Despite a ten-week suspension of site activity, as a consequence of the Coronavirus pandemic, the project team continues to strive to achieve the pre-pandemic target opening date window of Autumn 2021.

4 Current Progress

4.1 The joint venture of Ferrovial Agroman and Laing O'Rourke (FLO) continues to make good progress in delivering the NLE as TfL's main contractor.



Fig 1: The southbound NLE running tunnel, with track installation completed

4.2 Four major milestones have been successfully completed in the last 12 months. Further detail on some of these milestones is provided in Appendix 1:

(a) the first completed part of the Battersea Power Station station box was handed back to BPSDC on schedule in November 2019, enabling BPSDC to commence delivery of the OSD;

(b) the signalling software connecting the NLE to the rest of the Northern Line at Kennington was successfully commissioned over Christmas 2019;

(c) the permanent electricity supply to Battersea Power Station and Nine Elms stations was successfully switched on in January 2020; and

(d) installation of the traction power supply was completed in September 2020, including the trackside conductor rail which will carry the 22kv electricity supply used by the Northern line fleet of trains.



Fig. 2: A contractor installs signage at Battersea Power Station.

- 4.3 In line with Government guidance all of our project sites were brought to a temporary safe stop to limit the spread of the Coronavirus. Construction activity on the NLE was paused between 24 March and 26 May 2020, aside for limited specifically approved activities needed to keep the worksites in a safe condition. Onsite construction works resumed on 27 May 2020, in accordance with Public Health England guidelines, implementing a number of social distancing initiatives on-site and re-planning work as required.



Fig 3: Social-distancing measures implemented at the Nine Elms worksite.

- 4.4 A major milestone for the project will be the start of the Dynamic Systems Testing ("Engineers' Railway") stage. This stage will see standard tube trains operating through the extension for the first time, to aid completion and testing of the railway systems. The extension will remain a construction site during Engineers' Railway, which will see the testing of rail systems and signalling technology, as well as safety testing of the same. Engineers' Railway is due to commence in late December 2020.
- 4.5 Engineers' Railway installation and testing will be followed by Trial Operations, from summer 2021. Trial Operations will be used to demonstrate that the railway is fully safe to operate. Evacuation and other emergency procedures will be fully tested during Trial Operations, and the first tranche of Train Operator training will be carried out.

5 Assurance

- 5.1 A TfL Project Assurance and Independent Investment Programme Advisory Group (IIPAG) Assurance Review of the Programme took place in summer 2020.
- 5.2 There were no critical issues identified. A management response has been prepared addressing all of the recommendations.

List of appendices to this report:

Appendix 1: Site Progress Updates

A paper containing exempt supplemental information is included on Part 2 of the agenda.

List of Background Papers:

Independent Investment Advisory Group Report

TfL Project Assurance Reports

Management response to IIPAG and TfL Project Assurance Reports

Contact Officer: Stuart Harvey, Director of Major Projects
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Appendix 1: Site Progress Updates

Tunnels and Fit-Out

The installation of track was completed in May 2019, with the final component being the crossover immediately east of Battersea Power Station. The points linking the NLE to the remainder of the Northern Line were integrated into central signalling software during work over Christmas 2019, and are now operated from the Northern line control centre.

Work has since focussed on supporting systems needed for the Engineers' Railway, in particular traction power and communications equipment.

Installation of the tunnel ventilation system continues, along the entire NLE worksite.



Fig. 1: Social-distancing signage for track-level access.

Battersea Power Station

Station fit-out is well under way at Battersea Power Station, with installation of the escalators now in progress. Some parts of the final finishes have been added, with station roundels in place, and platform surfaces now tiled.



Fig. 2: Battersea Power Station platform level, following cladding installation.

A significant milestone was met in November 2019, when the first part of the Battersea Power Station station box roof was handed back to BPSDC, which has enabled BPSDC to start construction of its OSD. The progressive handover of the station box to BPSDC will continue as our contractor, FLO, completes the ventilation, intervention shaft, headhouses and the entrance structure at the eastern end of the station.

UK Power Networks activated the station's electricity supply in December 2019, meaning lighting and stations systems are now supported from their permanent power supplies. The temporary substations used to support the construction period are now being removed. Equipment rooms are being gradually commissioned, as systems installation in each completes.



Fig. 3: The Battersea Power Station, with the station box in the foreground.

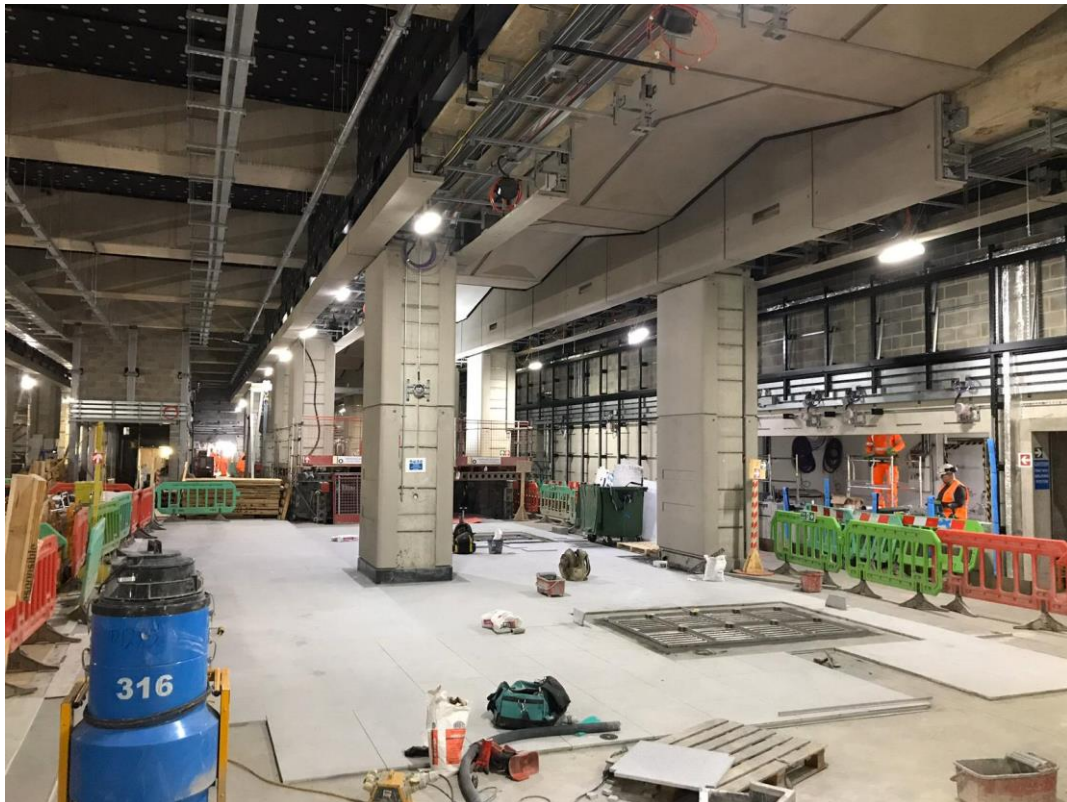


Fig. 4: Floor tile installation in progress at Battersea Power Station.

Nine Elms

Lifts and escalators have been installed at the station. Final commissioning will be carried out at the end of construction.

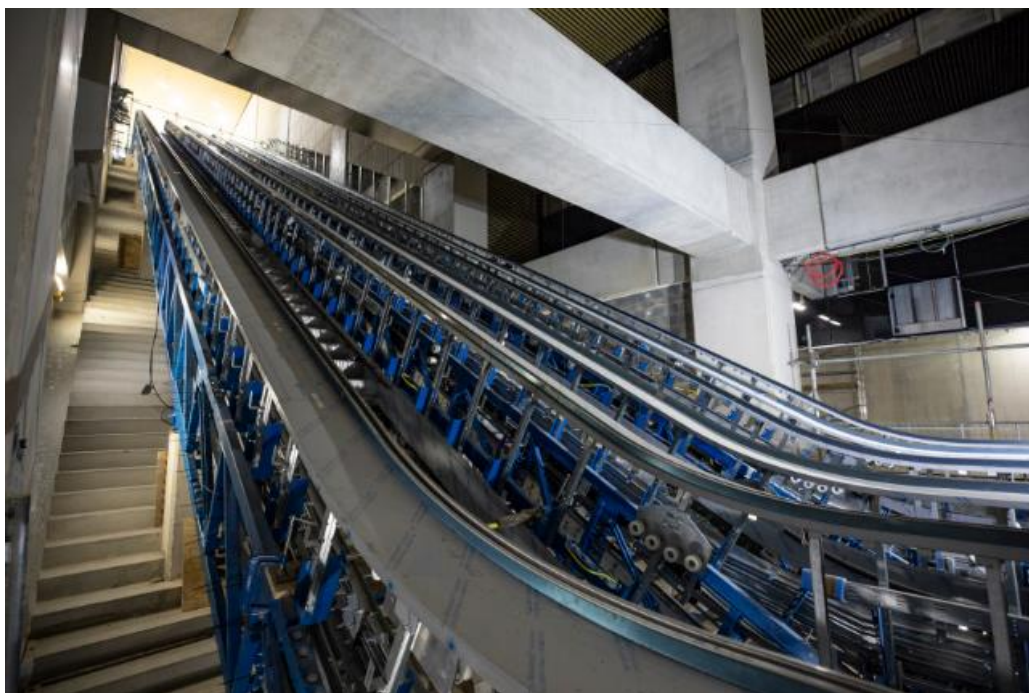


Fig 5: New ticket hall escalator bank at Nine Elms.

As with Battersea Power Station, electrical and mechanical systems installation is well underway at Nine Elms. Waterproofing of the structures constructed in the new Pascal Square is being completed and work to open-up pedestrian connections across the wider Nine Elms development site has begun. Pedestrian access from Nine Elms towards the river is being provided by opening-up a railway arch in a Network Rail viaduct.



Fig. 6: An equipment room under construction at Nine Elms station.

Kennington Park and Kennington Green

The headhouses atop the two ventilation shafts in Kennington are now being clad in brick. Once the brickwork has been completed the park space will be reinstated.



Figs 7 & 8- Progress of the Kennington Green headhouse cladding, and an artist's impression of the same at completion.

Programmes and Investment Committee



Date: 16 October 2020

Item: Members' Suggestions for Future Discussion Items

This paper will be considered in public

1 Summary

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

2 Recommendation

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

3 Forward Programme Development

- 3.1 The Board and its Committees and Panels have forward programmes. The content of the programme arise from a number of sources:
- (a) Standing items for each meeting: Minutes; Matters Arising and Actions List; and any regular quarterly or periodic reports. For this Committee these are the quarterly Investment Programme Report and the regular report on the Crossrail project.
 - (b) Programmes and Projects at a level requiring Committee approval. These include the annual review of the 20 sub-programmes in the Investment Programme and other approvals sought following advice from the operating businesses.
 - (c) Items requested by Members: The Deputy Chair of TfL and the Chairs of all of the Committees and Panels will regularly review the forward programme 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 Programme

- 4.1 The current programme 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.
- 4.2 Owing to the current circumstances, it is likely that a revised plan will be developed later in 2020.

List of appendices to this report:

Appendix 1: Programmes and Investment Committee Forward Planner 2020/21

List of Background Papers:

None

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Programmes and Investment Committee Forward Planner 2020/21

Programmes and Investment Committee Forward Planner 2020/201

Membership: Prof Greg Clark CBE (Chair), Dr Nelson Ogunshakin OBE (Vice Chair), Heidi Alexander, Ron Kalifa OBE, Dr Alice Maynard CBE, Mark Phillips, Dr Nina Skorupska CBE, Dr Lynn Sloman and Ben Story

Abbreviations: Managing Director (MD), Customer, Communication and Technology (CCT), London Underground (LU), Surface Transport (ST), CFO (Chief Finance Officer) and D (Director)

11 December 2020		
Use of Delegated Authority	General Counsel	Standing item
Quarterly Programmes and Investment Report	MD LU and TfL Engineering, MD ST and D Major Projects	To note high-level progress update against the 20 grouped Investment Programme and Major Project items and any specific approvals required in relation to programmes not on the deep-dive list for that meeting.
IIPAG Quarterly Report (appendix on Second line Assurance Activities)	Project Assurance	Standing item
TfL Project Assurance	Project Assurance	Standing item
ER8 Delivery of key projects and programmes	D Major Projects	Annual update
Innovation Update	D Transport Innovation	Annual update
Emergency Services Network	Chief Technology Officer	Update and approval
LSP / Healthy Streets	MD ST	Update and approval
Four Lines Modernisation	D Major Projects	Update
Bakerloo Line Extension	D City Planning	Update

Programmes and Investment Committee Forward Planner 2020/21

LU Fleet	MD LU and TfL Engineering	Update and approval
LU Signalling and Controls	MD LU and TfL Engineering	Update and approval
Barking Riverside Extension	D Major Projects	Update and approval
DLR HIF Funding	D Major Projects	Update and approval
Air Quality Programme Annual Submission	D City Planning	Annual update
MTS Project (Connect Programme)	D Major Projects	Update and approval
Elephant and Castle Station	D Major Projects	Update and approval

3 March 2021

Use of Delegated Authority	General Counsel	Standing item
Quarterly Programmes and Investment Report	MD LU and TfL Engineering, MD ST and D Major Projects	To note high-level progress update against the 20 grouped Investment Programme and Major Project items and any specific approvals required in relation to programmes not on the deep-dive list for that meeting.
IIPAG Quarterly Report (appendix on Second line Assurance Activities)	Project Assurance	Standing item
TfL Project Assurance	Project Assurance	Standing item
LU Enhancements	MD LU	Annual approval
LU Renewals (TBC)	MD LU	Annual approval

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Piccadilly Line Upgrade HV	D Major Projects	Update and approval
Lifts and Escalators	D Major Projects	Update and approval
Air Quality Programme Pans beyond 2021	D City Planning	Member request

Regular items:

- Use of delegated authority by Chair, Commissioner and CFO.
- Quarterly Monitoring Report – to include:
 - high-level progress update against the 20 grouped Investment Programme and Major Project items;
 - specific approvals required in relation to programmes not on the deep-dive list for that meeting;
 - identification of programmes about to issue tenders so Members can input;
- Second Line Assurance Activities
- IIPAG Quarterly Report
- 4/5 deep dive papers each meeting from the rolling programme of Investment Programme / Major Project items. Papers to seek annual approval for the programme.
- Crossrail 2 – updates and authorities (if kept separate from the Major Project list).
- Innovation update (December)

Items to be scheduled:

- London Overground future planning
- Rotherhithe Tunnel
- Fiveways Corner in Croydon
- Surface Transport Assets
- Innovative Technology in Signalling

Future items for Committee or Board:

- How TfL investment programme is effected by:
 - Potential rail devolution
 - HS2
 - Heathrow expansion
 - Oxford Street pedestrianisation

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- Football stadiums/events