

Agenda

Meeting: Programmes and Investment Committee

Date: Wednesday 17 July 2019

Time: 10.15am

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

Members

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

Ben Story

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

This meeting will be open to the public, except for where exempt information is being discussed as noted on the agenda. There is access for disabled people and induction loops are available. A guide for the press and public on attending and reporting meetings of local government bodies, including the use of film, photography, social media and other means is available on www.london.gov.uk/sites/default/files/Openness-in-Meetings.pdf.

Further Information

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

For media enquiries please contact the TfL Press Office; telephone: 0845 604 4141; email: PressOffice@tfl.gov.uk

Howard Carter, General Counsel
Tuesday 9 July 2019

**Agenda
Programmes and Investment Committee
Wednesday 17 July 2019**

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 15 May 2019 (Pages 1 - 10)

General Counsel

The Committee is asked to approve the minutes of the meeting of the Committee held on 15 May 2019 and authorise the Chair to sign them.

4 Matters Arising and Actions List (Pages 11 - 16)

General Counsel

The Committee is asked to note the updated actions list.

5 Crossrail Update (Pages 17 - 20)

Chief Operating Officer - Elizabeth line and Investment Delivery Planning Director

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

6 Crossrail - Project Delivery Partner Incentive Scheme (Pages 21 - 22)

Investment Delivery Planning Director

The Committee is asked to note the paper and exempt supplemental information on Part 2 of the agenda and approve in principle the changes proposed by Crossrail limited to the current Final Incentive Scheme and authorise the Chief Finance officer to approve the final form of such changes.

7 Investment Programme Report - Quarter 4 2018/19 (Pages 23 - 116)

Director Major Projects and Managing Directors London Underground and Surface Transport

The Committee is asked to note the report.

8 Independent Investment Programme Advisory Group Quarterly Report (Pages 117 - 122)

Director of Risk and Assurance

The Committee is asked to note the Independent Investment Programme Advisory Group's Quarterly Report and the Management Responses.

9 Project Assurance Update (Pages 123 - 128)

General Counsel

The Committee is asked to note the paper.

10 Use of Delegated Authority (Pages 129 - 140)

General Counsel

The Committee is asked to note the paper.

11 Crossrail 2 (Pages 141 - 142)

Managing Director Crossrail 2

The Committee is asked to note the submission of the 2019 Strategic Outline Business Case and exempt supplementary information on Part 2 of the agenda.

12 Silvertown Tunnel Update (Pages 143 - 144)

Managing Director Surface Transport

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

13 Healthy Streets Programme 2019/20 and 2020/21 (Pages 145 - 192)

Managing Director Surface Transport

The Committee is asked to note the paper and approve additional Programme and Project Authority.

14 London Underground Renewals and Enhancements Track Programme (Pages 193 - 204)

Managing Director London Underground

The Committee is asked to note the paper and approve additional Programme and Project Authority.

15 Member suggestions for future agenda discussions (Pages 205 - 210)

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

Wednesday 23 October 2019 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 Crossrail Update (Pages 211 - 318)

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

20 Crossrail - Project Delivery Partner Incentive Scheme (Pages 319 - 348)

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

21 Crossrail 2 (Pages 349 - 376)

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

22 Silvertown Tunnel Update (Pages 377 - 382)

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

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Transport for London

Minutes of the Programmes and Investment Committee

Committee Room 2, Palestra,
197 Blackfriars Road, London, SE1 8NJ
10.15am, Wednesday 15 May 2019

Members Present

Prof Greg Clark CBE (Chair)
Heidi Alexander
Dr Alice Maynard CBE
Mark Phillips
Dr Nina Skorupska CBE
Dr Lynn Sloman

In Attendance

Executive Committee

Mike Brown MVO	Commissioner
Howard Carter	General Counsel
Stuart Harvey	Director of Major Projects
Simon Kilonback	Chief Finance Officer
Gareth Powell	Managing Director, Surface Transport

Other Staff

Alexandra Batey	Head of Public Transport Sponsorship, Surface Transport (for minute 31/05/19)
Patrick Doig	Finance Director, Surface Transport
David Hughes	Investment Delivery Planning Director
Lorraine Humphrey	Head of TfL Project Assurance
Craige Keogh	Lead Commercial Manager, Commercial - Capital Delivery (for minute 32/05/19)
Antony King	Finance Director, Major Projects Directorate
David Rowe	Head of Major Projects Sponsorship, Surface Transport (for minute 32/05/19)
Stephen Dadwell	Head of Corporate Finance (Project Finance) (for minute 32/05/19)
Jamie Mordue	Secretariat Officer

Crossrail Limited

Mark Wild	Chief Executive, Crossrail Limited
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Independent Investment Programme Advisory Group (IIPAG) Attendance

Alison Munro	Chair, IIPAG
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KPMG

Gordon Shearer	UK Head, Infrastructure Advisory Group
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22/05/19 Apologies for Absence and Chair's Announcements

Apologies for absence were received from Dr Nelson Ogunshakin OBE (Vice Chair), Ron Kalifa OBE and Ben Story.

The Chair informed the Committee that he had agreed to accept an additional late item relating to the Silvertown Tunnel on the agenda for this meeting.

To reflect TfL's focus on safety, the Chair advised that Members should raise any safety issues in relation to items on the agenda or within the remit of the Programmes and Investment Committee at the start of the item or under Matters Arising. If there were any other safety issues then these could be discussed with General Counsel or an appropriate member of the Executive Committee after the meeting.

23/05/19 Declarations of Interests

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

Howard Carter informed the Committee that the Chair's biography and declarations of interest had been updated to reflect his new role as advisor to HSBC from 1 April 2019.

24/05/19 Minutes of the meeting of the Committee held on 6 March 2019

It was agreed that minute 14/03/19 be amended to state that Members asked that stakeholder engagement be carried out to determine whether step-free access "could" be delivered to the Central line at Bank station, rather than "should".

The amended minutes of the meeting held on 6 March 2019 were approved as a correct record and signed by the Chair.

25/05/19 Matters Arising and Actions List

Howard Carter introduced the paper.

The action relating to minute 76/12/18 would remain open as the paper on the agenda related primarily to the Ultra Low Emission Zone Expansion. An update on how TfL was reducing emissions across the business and work towards the Mayor's Transport Strategy 2050 Zero Carbon target would be provided to a future meeting.

The Committee noted the Actions List.

26/05/19 Crossrail Update

David Hughes introduced the item, which updated the Committee on the Crossrail project. Under the terms of the Crossrail Project Development Agreement, Crossrail Limited (CRL) had issued Sponsors (Department for Transport and TfL) with a Change Notice to update the Stage 3 opening date within the Sponsors Requirements. A date range for Stage 3 opening had been identified as September 2020 to March 2021. TfL was close to finishing work to implement recommendations in the independent KMPG reports and an update would be submitted to the Audit and Assurance Committee.

The Chair invited Mark Wild, Chief Executive Officer, CRL, to update the Committee. Mark Wild told the Committee that safety remained a high priority and that, whilst there had been some concern over an increase in high potential near misses, as the project moved towards testing, management actions had ensured that these had begun to reduce. A 'Stepping Up Week' would be held in June 2019, with a focus on reducing risks and positively influencing a strong health and safety culture.

Three key milestones were identified: finishing the central tunnel section, including safety critical features; finishing the stations to the degree that they can accept trains; and assurance of the safety of the interaction between the signalling and trains. Completion of the milestones would allow full trial running of the trains; currently four trains were running at any one time and this would need to increase to 30-50 at any time.

The expectation for the Stage 3 opening was the end of 2020 but an opening date window was necessary to account for uncertainties. The step from Stage 3 to Stage 4 was relatively large. A reliability growth model was being established and more information on a proposed opening date range for Stage 4 would likely be available in autumn 2019.

The Committee noted that, from November 2018 to May 2019, around 2,000 Tier 1 contractors had been demobilised. During the same period, 18 of 22 key milestones had been achieved. Of the four remaining milestones, two related to Bond Street station, one to the Canary Wharf station retrofit of safety critical systems and one was a technical issue.

The Canary Wharf retrofit was required as the station had not been built to the requisite safety standards. TfL had spent £75m, and it was envisaged that more would be required, to replace or install essential safety critical systems to meet the requirements of Section 12 of the Fire Precaution Act 1971.

The National Audit Office report, Completing Crossrail, was welcomed. Although CRL was not required to respond to the report's recommendations, it would submit a response through the Treasury Minutes.

The Committee thanked Mark Wild for his work and his willingness to appear regularly before the Committee. Members commended the focus on safety of staff and future customers.

Mike Brown had recently met with the Chief Executive Officer of Network Rail. In relation to Stage 5a (services between Paddington main line station and Reading),

Network Rail had appointed a contractor to install platform cameras and was finalising its schedule to deliver platform extensions.

The Committee noted the paper and, acting under the authority delegated by the Board, approved the change set out in this paper to the Sponsors Requirements in the Project Development Agreement providing for a new Stage 3 opening date of ‘September 2020 to March 2021’.

27/05/19 Crossrail Limited Board Appointments

Howard Carter introduced the paper, which set out proposals to extend the appointments of Anne McMeel and Dr Nelson Ogunshakin OBE as TfL Sponsor nominated non-executive directors to the Crossrail Limited (CRL) Board.

The original appointments had been made when it was thought the Crossrail project was more progressed than it was. The extension of the appointments would allow both nominees to continue on the CRL Board until the end of the terms of their current TfL Board appointments.

The Committee noted the paper and, under the authority delegated by the Board on 27 March 2019, extended the appointments of Anne McMeel and Dr Nelson Ogunshakin OBE as TfL Sponsor nominated non-executive directors to the Crossrail Limited Board from 2 September 2019 to 2 September 2020.

28/05/19 Update on Major Projects and Sub-Programmes

Stuart Harvey introduced the paper, which provided a summary of the key outputs of major projects and sub-programmes in the quarter, covering the period December 2018 to March 2019. A full report would be submitted to the next meeting of the Committee. A campaign was to begin in the quarter on increasing site safety. TfL was encouraging an exchange of experience, knowledge and expertise between Tier 1, Tier 2 and Tier 3 contractors.

The first section of the new signalling system on the Four Lines Modernisation (4LM) programme had been successfully introduced and was operating between Hammersmith and Latimer Road. The next phase of the 4LM programme was intended to go live in July 2019.

Good progress continued to be made on the extension of the London Overground to Barking Riverside, which would help the Barking Riverside Development deliver up to 10,800 new homes. Two hundred metres of new track had been installed and work to install overhead lines was progressing.

On the Northern Line Extension, the conductor rails had been installed and wider station fit-out was underway. The modernisation of Bank station reached a significant milestone, with the first breakthrough between a new entrance on Cannon Street and the newly constructed Northern line tunnel. The breakthrough would make further construction work easier.

David Hughes told the Committee that Finsbury Park Underground station became step-free in January 2019, which included step-free access to the Piccadilly and Victoria lines as well as to platforms in the Network Rail station. South Woodford Underground station became the 78th fully step-free station in March 2019, as previously it was only step-free for customers using the eastbound entrance for services to Epping.

In January 2019, TfL launched the final public consultation on the Direct Vision Standard proposals, which would tackle road danger at its source by eliminating Heavy Goods Vehicles' blind spots. The European Commission had followed London's lead and included direct vision in the revised General Safety Regulation, the leading piece of EU road safety legislation. The Ultra Low Emission Zone (ULEZ) began operation in April 2019. The roll-out of ULEZ was smooth and was already achieving in excess of forecasted compliance. The Committee commended the work that had gone into the launch of ULEZ.

The Committee noted the paper.

29/05/19 Independent Investment Programme Advisory Group – 2019/20 Workplan

Lorraine Humphrey introduced the paper, which set out the Independent Investment Programme Advisory Group's (IIPAG's) workplan for 2019/20.

IIPAG's Terms of Reference require that it produce an annual workplan and this be reviewed twice per year by the Committee and the Audit and Assurance Committee. Workshops had taken place between IIPAG, TfL Assurance and TfL Internal Audit to inform the workplan.

Alison Munro told the Committee that IIPAG had worked to identify the programmes and projects with the most risk, so that it could add the most value to the work of Assurance and Internal Audit, rather than duplicate it. Resources had been set aside to conduct deep dives on particular issues and IIPAG members would be allocated to specific areas to build up levels of expertise. The current focus was on crosscutting themes to draw out any systemic issues.

With regard to IIPAG's future work on Healthy Streets, it was noted that while the Programme had a relatively low cost, 30 days of resource was considered appropriate because the sub-programmes could be resource intensive for TfL and providing assurance could be time intensive for IIPAG. Some sub-programmes may need to be revisited.

The resource allocated was indicative and, as the workplan progressed, the time spent in certain areas could be adjusted.

The Committee noted the Independent Investment Programme Advisory Group's 2019/20 workplan.

30/05/19 Delegated Authority

Howard Carter introduced the paper, which provided an update on the use of Chair's Actions and of Programme and Project Authority granted by the Commissioner and the Chief Finance Officer.

Since the last meeting of the Committee, the Chair, in consultation with available members of the Committee, had used Chair's Action to approve the appointment of Sarah Atkins as a further TfL nominated non-executive director to the Board of Crossrail Limited.

The Chief Finance Officer had approved Procurement Authority in relation to two contracts covering TfL IT hosting and Central Line Signal Life Extension.

The Committee noted that a Mayoral Direction had been issued in relation to the London Vehicle Scrappage Scheme.

The Committee noted the paper.

31/05/19 Air Quality Management Programme

David Hughes introduced the paper, which updated the Committee on the delivery of the Air Quality Management (AQM) Programme and proposals to extend and vary the contract with Capita plc, in relation to the Business Operations System element of the Ultra Low Emission Zone Expansion 2021 (ULEX).

The AQM Programme would improve the impact of transport on air quality and climate change through the delivery of ULEX, which would be integrated with new and existing charging schemes. The AQM Programme would oversee policy development and customer research that would enable evolution in emissions charging. It was proposed to combine the Low Emission Zone 2020, HGV Safety Permit (Direct Vision Standard) and Camera Refresh schemes into the AQM Programme, which would then be integrated into the Air Quality and Environment (AQE) Programme. It was recommended that ULEX proceeded into concept design (Pathway Stage 3), where the project would complete negotiations on key delivery decisions to enter the detailed design phase. Work to identify traffic pressures as a result of expanding the charging zone would commence during the next stage of modelling.

The Committee noted that the AQE portfolios would no longer be separate but would fall under the AQM Programme. Schemes and projects that were related to ULEX, such as the Camera Refresh scheme, would also be included in the AQM Programme. This would provide a more effective and efficient governance structure and gave TfL a stronger commercial position when negotiating with suppliers.

Updates on the Programme will be included in the Quarterly Investment Programme Report so that the Committee can track programme milestones.

As ULEX was implemented, TfL would necessarily capture more data, as AQM schemes spread over a wider geographical area. Members requested that a briefing be provided on privacy and data security. **[Action: David Hughes]**

The Committee noted the paper and the paper on Part 2 of the agenda, and:

- 1 approved the extension and variation of the contract with Siemens plc as described in the paper and the related paper on Part 2 of the agenda to enable the delivery of the Detection and Enforcement Infrastructure (D&EI) element of Ultra Low Emission Zone Expansion (ULEX);**
- 2 granted additional Programme and Project Authority for ULEX and additional Procurement Authority to the maximum amount as detailed in the paper on Part 2 of the agenda in respect of the extension and variation of the D&EI contract with Siemens plc;**
- 3 noted the update on the Business Operations System element of ULEX and the proposal to extend and vary the contract with Capita plc as described in the paper and the paper on Part 2 of the agenda to enable the delivery of ULEX;**
- 4 approved the following transfers of Financial Authority and Programme and Project Authority and remit of the following:**
 - (a) AQM Programme into the Air Quality and Environment Programme;**
 - (b) Low Emission Zone (LEZ) 2020 into the AQM Programme;**
 - (c) HGV Safety Permit Scheme (HSP) (Direct Vision Standard) into the AQM Programme;**
 - (d) Camera Refresh scheme from the 'Other Operations' Portfolio into the AQM Programme; and**
- 5 approved £11.9m of Programme and Project Authority for the Camera Refresh scheme.**

32/05/19 Silvertown Tunnel

The Chair informed the Committee that he had agreed to accept an additional late item relating to the Silvertown Tunnel on the agenda for this meeting. Information in relation to the paper was not available at the time that the agenda and papers were published. The reason for urgency was that delaying the decision would further delay the progress of the project and the selection of a Preferred Bidder to deliver the project. The public paper had been published and the exempt information provided to Members on 10 May 2019.

David Rowe introduced the paper, which updated the Committee on the Silvertown Tunnel project and sought approval to enter into the proposed Public-Private Partnership (PPP) agreement.

Delivery of the Silvertown Tunnel would significantly contribute to eliminating congestion at the Blackwall Tunnel and enable the provision of new cross river bus links, through the transformation of bus services and significantly increase the proportion of cross river trips made by public transport. The number of unplanned

closures at Blackwall could also be reduced, which would make the cross river road network more resilient.

The bid submissions had been evaluated and TfL needed to appoint the preferred bidder in August 2019. TfL would repay the cost over 25 years, linked to the performance of the preferred bidder. This commercial structure meant the risk of construction and design was with the preferred bidder and TfL could control the user charges.

The Committee noted that, east of Tower Bridge, only one single decker bus route (108) crossed the river and it was not consistently reliable. The Silvertown Tunnel would enable the extension of route 108 and the introduction of new routes, which would enable an estimated 20 buses per hour in each direction, building up to 37.5 buses per hour in each direction. TfL would target an increase in the number of trips by bus, rather than by private vehicles. Provided it was coherent with the overall TfL electrification strategy, it should be possible to use electric vehicles for the proposed new bus routes.

Modelling showed that the delivery of the Silvertown Tunnel would result in an increase in overall air quality, particularly on the roads that were currently most polluted. The Department for Transport had also considered the impact on air quality as part of the Development Consent Order process.

A number of benefits would be targeted at local residents, for example concession bus routes, free bus routes for a period of time and lower paid workers' discount on the user charge for the tunnel. Other benefits, developed with local authorities, included: pocket parks; increasing walking and cycling; and opening up sites for development. The project had a target to employ 25 per cent of the workforce from the local area and, for every £2m in cost, one apprenticeship would be created. TfL would work with local authorities to ensure that the dynamics of the local area was reflected.

TfL had collected a great deal of experience on PPP agreements, particularly when they were appropriate to use. The use of PPP on the Silvertown Tunnel was considered appropriate and efficient because TfL did not have project experience of the delivery of road tunnels, the tunnel was not intimately linked to TfL's core network operations and TfL was unable to borrow money to deliver such projects.

The Project Agreement set an appropriate structure for management of the PPP relationship with clearly defined roles, responsibilities and risks for both the construction and operational phases. Design, construction and maintenance risks for the tunnel had been passed to the private sector consortium, which has proven its competency, capacity and was generally best placed to manage these risks. Payments would only be made if/when the tunnel was operational and deductions would be made for performance failures, including poor performance and excessive closures.

TfL had undertaken substantial assessment of its retained risks through the next stage. Certain key risks related to interfaces with third-party stakeholders, and agreements had been put in place to manage the process.

The Committee noted the paper and the related paper on Part 2 of the agenda and:

- 1 approved Financial Authority (unbudgeted), Programme and Project Authority and Procurement Authority for the amounts set out in the paper on Part 2 of the agenda;
- 2 approved entering into the proposed PPP agreement for the Silvertown Tunnel (the Project Agreement) as described in the paper and the paper on Part 2 of the agenda to the bidder submitting the most economically advantageous tender as described in the paper on Part 2 of the agenda;
- 3 noted that, as the proposed arrangements extend beyond the life of the current Business Plan, provision will need to be made in future Business Plans for these commitments; and
- 4 noted that, as the details of the user charges and bus service provision will be confirmed closer to the time of Scheme opening, it will be necessary to seek separate authority in due course to receive user charging revenue and incur additional bus service costs.

33/05/19 Members' Suggestions for Future Discussion Items

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

Staff would look to reprogramme some of the items scheduled for the July meeting of the Committee to provide a more even balance with meetings scheduled for October and December 2019.

The Committee noted the paper.

34/05/19 Any other Business the Chair Considers Urgent

There was no other urgent business.

35/05/19 Date of Next Meeting

The next scheduled meeting of the Committee would be held on 17 July at 10.15am.

36/05/19 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: Air Quality Management and Silvertown Tunnel.

The meeting closed at 12.46pm

Chair: _____

Date: _____

Programmes and Investment Committee



Date: 15 May 2019

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 17 July 2019)

Actions from the meeting of the Programmes and Investment Committee held on 15 May 2019

Minute No.	Description	Action By	Target Date	Status note
31/05/19	<p>Air Quality Management Programme: Privacy and Data Security</p> <p>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.</p>	David Hughes	December 2019	A paper is on the forward plan for December 2019.

Actions from previous meetings of the Committee

Minute No.	Description	Action By	Target Date	Status note
05/03/19	<p>Crossrail Update: Office visit</p> <p>Mark Wild invited the Committee to visit Crossrail offices.</p>	Secretariat	May 2019	All Board members were invited to a briefing.
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	October 2019	In progress.

Minute No.	Description	Action By	Target Date	Status note
14/03/19	<p>London Underground Major Stations Programme: Bank station Central line step-free access</p> <p>Members asked that further stakeholder engagement be carried out to determine whether step-free access to the Central line should be delivered.</p>	Stuart Harvey	October 2019	In progress.
76/12/18	<p>Air Quality and Environment Programme 2018/19: Reducing TfL's emissions</p> <p>The Committee asked that consideration be given to how TfL, as a broader organisation, ensured that it reduced emissions in all areas of the business. An update on the milestones and how TfL was reducing emissions across the business and work towards the MTS 2050 Zero Carbon target would be provided in early 2019.</p>	David Hughes	Autumn 2019	Complete. The TfL Energy strategy Paper which links to the MTS 2050 Zero Carbon plans was presented to the Safety, Sustainability and Human Resources Panel in July 2019. Briefings to Committee Members have been undertaken to provide an update on progress.
38/07/18	<p>TfL Growth Fund: Monitoring and Evaluation</p> <p>The Committee requested that future updates include details on how projects and the benefits derived were monitored and evaluated.</p>	Alex Williams	October 2019	A paper on the Growth Fund is on the forward plan for October 2019.

Minute No.	Description	Action By	Target Date	Status note
45/07/18	<p>Member suggestions for future agenda discussions The Committee requested that the following information be provided at future Committee meetings:</p> <ul style="list-style-type: none"> (a) Information on the Northern and Bakerloo line extensions; (b) Oxford Street; (c) Rotherhithe to Canary Wharf Crossing; (d) The interactions between TfL and HS2 systems; (e) Potential issues arising from the expansion of Heathrow Airport, particularly unforeseen cost for Surface Transport; and (f) Information on the overall schedule of work for TfL to be included in the Investment Programme Report. 	Secretariat	Ongoing	<ul style="list-style-type: none"> (a) Complete. (b) On forward plan. (c) Complete. (d) Complete. A briefing was held. (e) Complete. A briefing was held. (f) Complete.
25/05/18	<p>London Underground Legacy Signalling and Information: Use of innovative technology The Committee requested a future discussion on the use of innovative technology for signalling upgrade works, such as 5G.</p>	David Hughes	March 2020	This work is being progressed with the development of future signalling strategies and upgrades. An update will be provided to a future meeting.
13/02/18	<p>Member suggestions for future agenda discussions: Investment Programme value for money Members were keen to better understand what mechanisms and procedures were in place to drive and demonstrate greater value in the delivery of its investment programme. TfL was undertaking an end to end review of project lifecycles to identify how it could identify opportunities and cultural changes to drive better value. An update would be provided to the Committee when this work was better developed.</p>	Stuart Harvey	Ongoing	In progress. An update will be provided to a future meeting.

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Programmes and Investment Committee



Date: 17 July 2019

Item: Crossrail Update

This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the status of the Crossrail Project and the readiness of the Infrastructure Managers (IM) for the operations and maintenance of the railway after handover from the Crossrail project.
- 1.2 In addition, the paper provides an update on the period reports from the Project Representative on Crossrail as well as an update on the actions being taken by Crossrail Sponsors and Crossrail Limited (CRL) in response to two of the reviews undertaken for the Sponsors by KPMG.
- 1.3 A paper is included on the Part 2 agenda which contains supplementary information that is exempt from publication by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL.

2 Recommendation

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

3 Crossrail update

- 3.1 While the project has seen a positive reduction in injuries on site, there has been an increase in high potential near misses, partly related to the move from construction activities to more testing and commissioning of an operational railway. This is being taken very seriously and CRL is assessing what further measures can be put in place to reduce the risk of further incidents.
- 3.2 CRL carried out a 'Stepping up Week' in the first week of June 2019 to highlight the importance of safe procedures and operations in completing the Elizabeth line. The critical importance of safety to every part of the job was demonstrated throughout the week as every site across the programme hosted special events.
- 3.3 Following the approval of a revised delivery schedule by the CRL Board on 25 April 2019, which was reported to the Committee on 15 May 2019, CRL's immediate focus has been to transition the high-level programme into a logic linked and detailed Delivery Control Schedule (DCS) and develop the resultant final cost forecast. The DCS is being developed with the help of specific targeted reviews to support delivery within the six-month opening window announced in April 2019 and the funding envelope announced in December 2018.

- 3.4 Following the achievement of Tier One Substantial Demobilisation (TOSD) at Stepney Green shaft on 5 June 2019, 19 of the 22 TOSD milestones have now been achieved. Plans are underway for handover to the IM of the Victoria Dock portal, the Mile End shaft and the Pudding Mill Lane shaft.
- 3.5 Close headway multi-train testing in the tunnels has now commenced with a minimum safe distance between trains, at slow speed, of only 50 metres. During July, testing will see the speed of the trains progressively increase and more of the automatic train operation functions brought into the testing programme. Testing of further versions of software provided by Siemens and Bombardier is also underway at the Crossrail Integration Facility located in Chippenham. These tests will build reliability of the software before it is used in the tunnels. The latest release of software is important as it will allow testing of further functionality and allow Bombardier to commence critical assurance activities for the train.
- 3.6 The project team continues to work collaboratively with Siemens and Bombardier to develop the software to the level necessary for full trial running early next year. Trial running also requires further progress in other aspects of testing and commissioning, including communications systems and also on the physical infrastructure, notably at Bond Street. Whilst the start of close headway testing is an important milestone, significant work lies ahead for both the project and all its suppliers.

4 Operational Readiness

- 4.1 Maintenance teams started moving into the new Maintenance Management Centre at Plumstead at the end of June 2019. Training and familiarisation continues although transfer of maintenance information from contractors continues to be slower than planned. Some limited track inspection is now being carried out by our maintenance teams and this has proved extremely valuable. Work is underway to increase the scope of the maintenance remit and allow the construction contractor to focus more on their remaining tasks.
- 4.2 The training of Traffic Managers, Incident Response Managers and Service Infrastructure Managers continues using signalling and power systems simulators and desktop exercises. After the latest update to the simulators, more of the functionality of the systems is now available. During mid-June 2019, members of the training and signalling staff worked at Siemens' signalling laboratory in Germany and tested the next release of the signalling software due to be rolled out on Crossrail. This was a very helpful exchange for both parties and will be repeated. Signalling and Response Managers continue to be engaged in support of the wider Dynamic Testing programme, including providing support on-board the trains and working with testers in the Romford Control Centre to observe and support train signalling.
- 4.3 The process for tracking the readiness for asset handover from the Project to TfL operational teams is being reviewed and strengthened. As the first shafts and portals have approached handover, further outstanding work has been found and the supporting asset and maintenance information has not been available. A more rigorous countdown process is being put in place alongside the DCS. This is vital as the handover process needs to be trialled and optimised with 'simple'

assets such as the shafts and portals before the major station and routeway completions commence later in the year.

5 Project Representative report update

- 5.1 The Project Representative (P-Rep) is in place for the purpose of providing Sponsors with oversight of project delivery, advising and raising points of the challenge to the Sponsors and scrutinising progress.
- 5.2 P-Rep regularly meets with the Joint Sponsor Team and attends the CRL Board and Sponsor Board. The P-Rep also provides a periodic report (every 4 weeks) to Sponsors that outlines the progress of the project and summarises their concerns. Other reports on particular topics are also produced as required.
- 5.3 In line with the KPMG recommendations and the commitments made by the Mayor for greater transparency of the Crossrail project, the most recent P-Rep reports will now be included as part of this regular update to the Committee. The P-Rep reports will also be published on our website¹ (where the reports from 2018/19 have already been made available).
- 5.4 The two most recent P-rep reports will be made available on our website prior to the Committee meeting. As with all the P-rep reports, it has been necessary to make some redactions to the reports prior to publication to protect commercially sensitive material. We have sought to keep such redactions to a minimum. Unredacted versions of the two most recent P-rep reports have been included in the paper on Part 2 of the agenda.
- 5.5 In its most recent report, P-rep highlighted the following:
- (a) that CRL needed to undertake further work to underpin the DCS and to ensure that the final cost forecast results in a robust and predictable output. Key to this would be confirming buy-in of the Tier 1 contractors;
 - (b) CRL's need to enhance the maturity of its risk management approach to ensure that it was fit for purpose for a programme of this type and at this stage of the delivery lifecycle;
 - (c) that the production rate of regulatory safety and technical assurance documentation by the contractors and CRL must increase if the DCS completion dates are to be met. Handover materials such as Operations and Maintenance manuals are behind schedule and their delivery is now a significant risk to formal handover; and
 - (d) that the production of a robust dynamic testing schedule can only be confirmed once the requirements of both rolling stock and signalling have been incorporated into an integrated schedule. The P-rep report makes clear that this is one of the most urgent priorities for CRL in the finalisation of the DCS and the securing of the future assured delivery of the Crossrail Project.

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

- 5.6 The P-Rep observations are shared with CRL and discussed in detail by CRL, P-Rep and the Sponsors at the regular meetings of the Crossrail Sponsor Board. With effect from period 2, Sponsors have asked that CRL produce a response to the P-Rep report on our website, the first of which will be included with the P-Rep report (with an unredacted version being included in the paper on Part 2 of the agenda).
- 5.7 In previous reports, P-Rep has highlighted concerns relating to optimism bias, CRL's plan to integrate the IMs, and CRL's mitigation plans for limiting the increases to the cost forecast.

6 KPMG update

- 6.1 Sponsors and CRL have now largely completed the implementation of recommendations made by KPMG following their governance and financial and commercial reviews of the project. All recommendations have either been completed or have actions in place which, for example, are reliant on the availability of CRL's revised schedule and cost baseline.
- 6.2 An update was presented to the Audit and Assurance Committee on 10 June detailing the actions that have and are being taken. A further update will be provided to the Audit and Assurance Committee on 26 September 2019 on completing the remaining actions.

List of Appendices:

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

List of Background Papers:

Papers submitted to the 10 June 2019 meeting of the Audit and Assurance Committee relating to Crossrail KPMG Review Update

Contact Officer: Howard Smith, Chief Operating Officer - Elizabeth line
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Contact Officer: David Hughes, Investment Delivery Planning Director
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Programmes and Investment Committee



Date: 17 July 2019

Item: Crossrail – Project Delivery Partner Incentive Scheme

This paper will be considered in public

1 Summary

- 1.1 The purpose of this paper is to update the Committee on a proposal by Crossrail Limited (CRL) to revise the staff rates and replace the current incentive scheme in the Project Delivery Partner (PDP) Services Contract with a new incentive schedule that support the delivery of the revised schedule. This would be a change to the PDP contract and requires the approval of the Crossrail Sponsors (TfL and the Department for Transport).
- 1.2 On 27 March 2019, the Board delegated authority to the Committee to take decisions on matters reserved to the Board in relation to the Crossrail Project.
- 1.3 The CRL Board, at its meeting of 21 May 2019, approved the principles of the proposed revision and authorised the CRL Executive to negotiate the final agreement. The negotiations are likely to conclude in August and it is recommended that the Committee considers delegating approval of the final agreement to the Chief Finance Officer.
- 1.4 This paper presents the proposal made by CRL and seeks approval in principle by the Committee. The milestones related to the incentive scheme are not yet finalised, and as such, it is recommended that the Committee approves them in principle and authorises the Chief Finance Officer to finalise the changes to the contract and revised incentive scheme.
- 1.5 A paper is included on Part 2 of the agenda, which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. 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 exempt supplemental information on Part 2 of the agenda and under the authority delegated by the Board, to:**
 - (a) **approve in principle the changes proposed by Crossrail limited to the current Final Incentive Scheme contained within the Project Delivery Partner Services Contract with the Crossrail Project's revised opening programme, as describe in the papers; and**

(b) authorise the Chief Finance officer to approve the final form of such changes.

3 Background

- 3.1 The Project Delivery Partner (PDP) contract was awarded to Bechtel Limited in April 2009 obliging the PDP to provide services against a scope, an annual service delivery plan and a schedule of deliverables. In addition, an incentive scheme that aimed at driving specific behaviours around cost, time and quality was included.
- 3.2 The recent changes to the project delivery schedule have caused CRL to consider if the existing PDP incentive remains effective. The CRL Board has concluded that a revision would be value for money and authorised its Executive to enter into negotiation with Bechtel.
- 3.3 Under the terms of the Project Agreements, CRL cannot vary the PDP contract without Sponsor Approval. TfL Standing Orders reserve that matter to the TfL Board, who delegated that authority to the Committee on 27 March 2019. Negotiations are likely to conclude well in advance of the next scheduled Committee meeting.

List of appendices to this report:

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

List of Background Papers:

None

Contact Officer: David Hughes, Director of Investment Delivery Planning
Number: 020 3054 8221
Email: HugheDa03@tfl.gov.uk

Programmes and Investment Committee



Date: 17 July 2019

Item: Investment Programme Report – Quarter 4, 2018/19

This paper will be considered in public

1 Summary

1.1 The Investment Programme Report describes the progress and performance in Quarter 4, 2018/19 of a range of projects that will deliver world-class transport services to London.

2 Recommendation

2.1 **The Committee is asked to note the report.**

List of appendices to this report:

Appendix 1: Investment Programme Report Quarter 4, 2018/19.

List of Background Papers:

None

Contact Officers: Gareth Powell, Managing Director Surface Transport
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Contact Officers: Nigel Holness, Managing Director London Underground (Interim)
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Contact Officers: Stuart Harvey, Director of Major Projects
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Transport for London investment programme report

Quarter 4 2018/19

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'. We are committed to creating a 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 on foot, by cycle or using public transport by 2041. To make this a reality, we prioritise health and the quality of people's experience in everything we do.

We manage the city's red route strategic roads and, through collaboration with the London boroughs, can help 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 and improve air quality, revitalise town centres, boost businesses and connect communities.

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, we can make people's lives easier and increase the appeal of sustainable travel over private car use.

We are moving ahead with many of London's most significant infrastructure projects, using transport to unlock growth. We are working with partners on major projects like Crossrail 2 and the Bakerloo Line Extension that will deliver the new homes and jobs London and the UK need. 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 freezing TfL fares so everyone can afford to use public transport, 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. We all need to pull together to deliver the Mayor's Transport Strategy; by doing so we can create a better city as London grows.

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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 investment programme quarterly performance report provides an update on a range of projects that will create world-class transport services in London.

This investment programme quarterly performance report presents an 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 sub-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 sub-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.

Financial records of spend to date, authority and estimated final cost (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.

The EFC of each sub-programme or project may display a red, amber or green (RAG) status, which represents the level of change in EFC from the previous quarter, such as:

EFC increase of two per cent or more:



EFC increase of five per cent or more:



EFC decrease of two per cent or more:



EFC decrease of five per cent or more:



Where no symbol is used, the EFC increase or decrease (if any) is less than two per cent.

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.

Each sub-programme or project also has an overall RAG milestone status, which represents the average forecast date variance against plan for 2018/19 budget milestones:

On time or early:



1-89 days late:



90 or more days late:



N/A (without 2018/19 budget milestones):





The new Walbrook exit at Bank station connects the Waterloo & City line more directly to the street

Budget milestones for 2018/19 – the key milestones listed in the TfL Budget – are detailed in the Appendix (page 86).

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, Deep Tube Upgrade, network extensions, and major stations, which are covered in pages 18-37 of this report. Future Major Projects schemes (see page 39) 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 40–51
- Surface comprises Healthy Streets, Air quality and environment, public transport, and asset investment. These are covered in pages 52-73
- Other comprises technology and data, the Growth Fund, and the Elizabeth line (including Crossrail), which are covered in pages 74–85

Mayor's Transport Strategy

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 providing more trains on our busiest services and are in the final phase of completing the Elizabeth line. We are

also making streets healthy, pleasant and productive places to stop at, travel through and live. Listening to, and acting on, the suggestions of our customers will allow 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 that 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





We are encouraging more people to cycle by making it a safer option

Business at a glance

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

How we report on our business



Facts and figures*

945 Trains on the TfL network



580km

TfL-operated highways



720km

TfL-operated Rail and London Underground routes



9,330

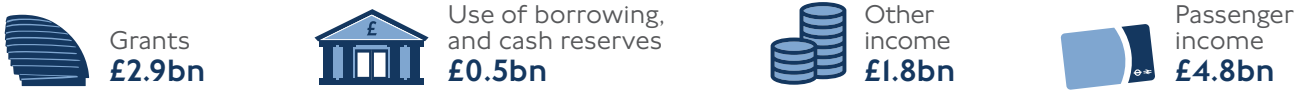
Buses on the TfL network



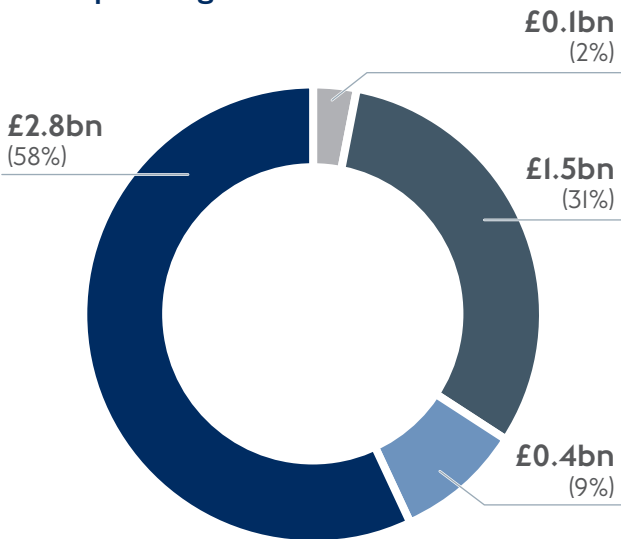
6,365

Traffic signals operated by TfL

Finances at a glance*



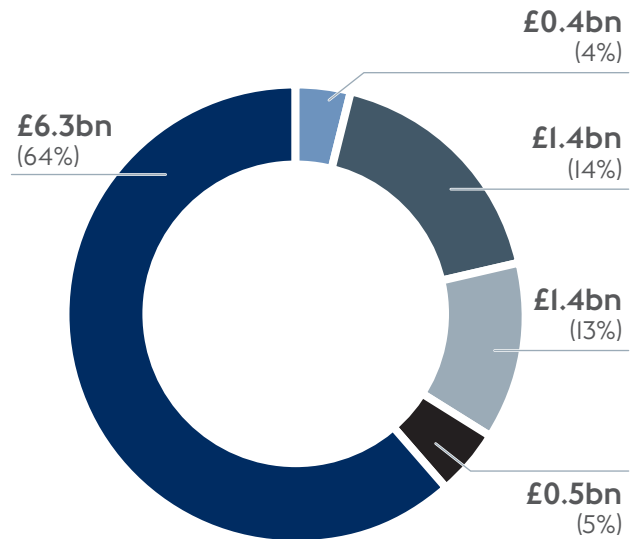
Total passenger income



Total: **£4.8bn**

- London Underground
- Rail
- Buses
- TfL Rail

Total costs



Total: **£10bn**

- Operating cost
- Capital renewals
- New capital investment
- Crossrail
- Net financing

* Based on full year 2018/19

Key achievements

Line upgrades

The first section of the new signalling system on the Four Lines Modernisation programme was successfully introduced earlier this year and is now operating between Hammersmith and Latimer Road, the first part of the network to benefit from the improvements. While there have been a few issues, performance, since introduction, has been better than predicted based on reliability recorded during system testing.

On the DLR rolling stock, tenders to replace the rolling stock were received. Post quarter end, following an extensive period of review and negotiation, a contract for the supply of the next generation DLR trains was awarded to CAF of Spain in June 2019.

The depot concept design has been accepted and a detailed design contract let for the enabling works and sidings design. A tender for the design and build of the sub-station modifications has been issued and we are on track to commence Beckton depot enabling works, as planned, in summer 2019.

Deep Tube Upgrade programme

Following the award of the Piccadilly line rolling stock contract, Siemens Mobility Limited is developing a draft Piccadilly line rolling stock concept design.

We issued the One Person Operation CCTV invitation to tender in March. This allows train operators to ensure safe departure of the new trains from the platform and we aim to award the contract in Quarter 3 of the next financial year.

Network extensions

On the Northern Line Extension, at Nine Elms, all columns for both the eastern and western superstructures are complete and now stand at full height. We have completed the final pour for the roof slab of the eastern superstructure to allow blockwork to begin at ground floor level.

At the Silvertown Tunnel, bidders submitted their final technical, commercial and financial proposals in February 2019. In May, we selected Riverlinx Consortium as the preferred bidder to build the Silvertown Tunnel.

At Barking Riverside, early overhead line equipment works were procured and completed over Christmas 2018, to enable subsequent possessions of Network Rail infrastructure by the main works contractor.

We have removed redundant wagons from the site and carried out initial ground works. We are undertaking readiness reviews to support the Network Rail possessions and blockade planned for later this year, and we continue to work with stakeholders to secure the required network change approval.

Stations and infrastructure

At Victoria station, almost all new passenger-facing facilities have now opened and the overall completion of the station, surrounding buildings and urban realm are planned for summer 2019. Some of the original escalators are being refurbished.



The Northern Line Extension includes a new station at Nine Elms

At Bank, the Walbrook entrance's formal opening in December 2018 was attended by the Mayor of London Sadiq Khan, Michael Bloomberg and the Commissioner, Mike Brown.

At the site of the new entrance, we have excavated an area 30m deep to allow for construction of the new station entrance onto Cannon Street. The structure that will form the new station entrance is 80 per cent complete, with the first of three new escalator barrels complete.

London Underground **Accessibility**

We delivered step-free access at South Woodford on time in March.

Track renewals

Under the track renewals programme this quarter, we replaced more than 1.2km of ballasted track, including 424 metres at Sudbury Town and 328 metres at Ravenscourt Park. In February, we achieved our target for this financial year to install 7.5km of new track across the London Underground network.

Rolling stock

On the Jubilee line, 44 out of 63 trains have been refurbished and are back in service. The refurbishments include a wheelchair area, new flooring, a refreshed interior (including grab-poles and handles), and sealing to the roof and windows. We have now started to install the new priority seating moquette.

On the Central line, we have delivered two carriages to the Bombardier test site to begin prototyping the new traction system. We have awarded the new flooring contract and installed a dust extraction system at Acton Works to facilitate the delivery of the Central Line Improvement Programme.

Signalling and control

We have commissioned approximately two thirds of the new Piccadilly line signalling control system at the control centre in west London. The area between Acton Town and South Harrow was achieved in February and we plan to complete all remaining areas by the end of 2019.

Surface **Walking**

We have now completed work at 29 out of 73 of the most dangerous junctions. We continue to review the completed projects to ensure they have successfully reduced collisions, and there is currently an average 25 per cent reduction overall in collisions across the improved junctions.

Work is progressing well at Old Street roundabout and advanced construction works to remove the traffic islands on all four arms of the roundabout are under way. Over the bank holiday weekend, the project team at Old Street achieved a major project milestone by removing the old vehicle dominated roundabout and replacing it with a two way traffic system. This is a temporary switch which closed the southeast arm of the junction

to traffic to allow for the construction of a new entrance to Old Street Underground Station near to Cowper Street. The project will transform this critical and busy junction and improve safety for pedestrians and cyclists as well as provide new entrances to Old Street Underground station.

Cycling

Construction began in March to deliver pedestrian and cycle improvements between Acton and Wood Lane along the A40, with major carriageway works starting in early April. Construction work is also complete at two critical junctions on Edgware Road and Euston Road that will provide significant improvements for people wanting to walk and cycle.

Work continues on several major new routes, identified in the Strategic Cycling Analysis published in 2017. Stakeholder engagement for the first four routes was undertaken between January and March 2019 for views and suggestions on our initial plans.

Liveable neighbourhoods

Feasibility funding has been awarded for the first phase of the programme and the second phase of funding was launched in February 2019. We received 22 bids from across London, 11 of which were awarded feasibility funding and started development work in April 2019. Projects awarded funding as part of phase 2 are: Bow (Tower Hamlets), Brixton (Lambeth), City Cluster (City of London), Croydon Old Town (Croydon), Custom

House (Newham), Enfield Town Centre (Enfield), Holborn gyratory (Camden), Ilford (Redbridge) Shortlands (Bromley), South Bermondsey (Southwark) and South Chiswick (Hounslow).

Borough Local Implementation Plan projects

The works at White Hart Lane, in Tottenham, were completed in March to meet requirements arising from the new Tottenham Hotspur football stadium development, particularly for pedestrian capacity in White Hart Lane and other local roads. This will contribute to the regeneration of North Tottenham, along with rail station access improvements.

Air quality and environment

In April, we introduced the new Ultra Low Emissions Zone (ULEZ) in central London. ULEZ is the centrepiece of Mayor Sadiq Khan's environmental initiatives, it enforces the world's toughest vehicle emission standard and is the first such initiative to operate 24/7. It has replaced the T-Charge and operates in the same area as the Congestion Charge.

The initial running of the scheme has gone well, with customer call centre volumes high on the day of launch but these subsequently decreased during the first week, and it continues to run smoothly.

Asset investment

All four lanes on the A127 successfully re-opened, as planned, in March.

Public transport

We introduced step-free access at Manor Park, Seven Kings and Maryland TfL Rail Stations in February and March. Works are complete at Willesden Depot to accommodate the new Class 710 Fleet for the London Overground line. An Access for All scheme is under way on the London Overground at West Hampstead station while Access for All funding has been secured for enhancements to Hackney Downs and Seven Sisters stations to deliver full step-free access for customers. Modified electric four-car trains have operated on the Barking to Gospel Oak line from 28 January and the first two new electric Class 710 trains began in passenger service in May.

On the DLR, we have carried out two successful testing phases of the vehicle control centre project. This will remove issues that can occur when trains move from one section to another.

Track renewals have successfully been completed with the majority of works being undertaken outside of weekend closures, allowing the service to remain operational.

The public address system installation has been delivered at Tower Gateway, Limehouse and Heron Quays.

We have completed installation of two new escalators at Limehouse DLR station. This station sees significant traffic as it provides a link with the c2c service to and from Fenchurch Street. The new escalators will improve station access and service interchange, and support future growth.

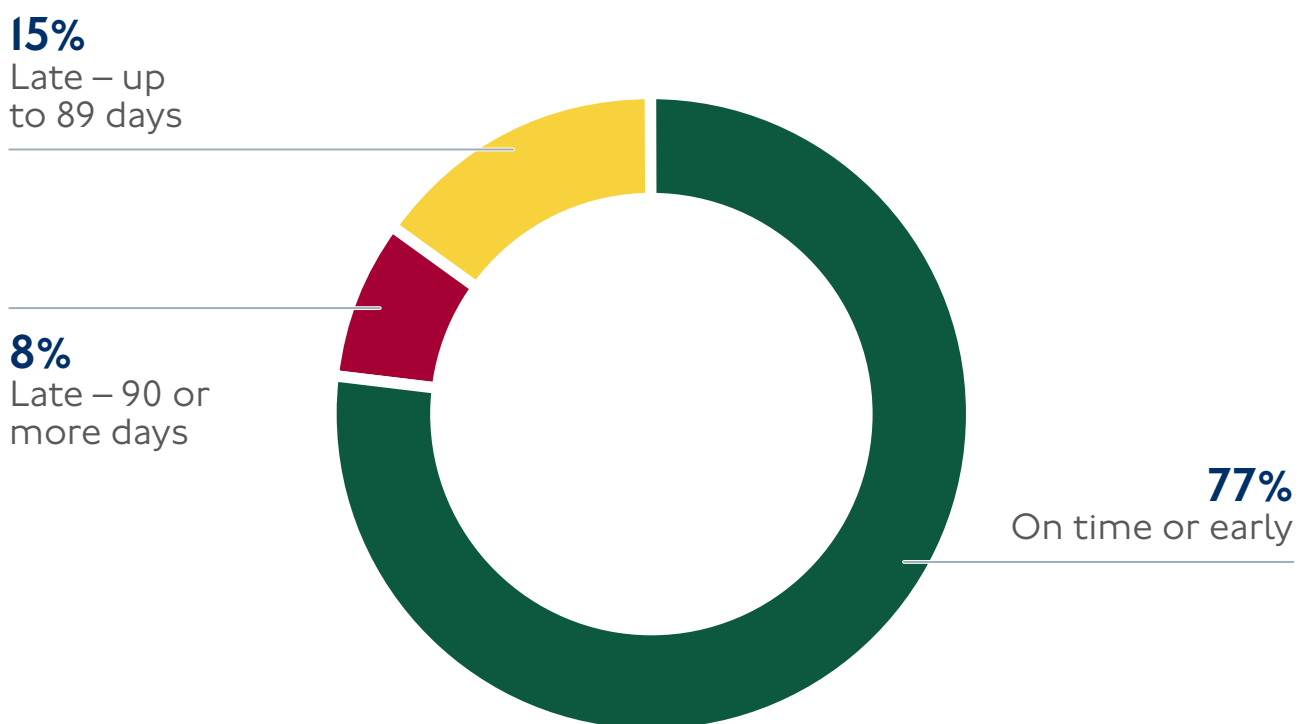
Following the switch to cashless trams in July 2018, existing ticket machines for London trams have been removed from tram stops in Croydon town centre (Reeves Corner to East Croydon). The remainder will be removed by the summer of 2019, and the newly available space at the stops will provide additional platform capacity, seating and information boards, depending on the location.

Other

On the surface radio replacement project, we completed the switch to the new digital system within the last financial year. Over 9,200 buses and ten base stations had the new digital radio hardware installed. All of this was achieved in just one year and one week after contract signature, and without any significant downtime between the old and new services.

2018/19 Budget milestone performance summary

The overall performance for all TfL 2018/19 Budget milestones is summarised as follows:



The late milestones are shown in the Appendix, on page 86.

Major projects

Line upgrades 

Four Lines Modernisation

Forecast completion year

2023

Spend to date (£m)

4,661

Spend authority (£m)

5,412

EFC (£m)

5,301

EFC movement post plan (£m)

(34)

2018/19 budget milestone RAG 

We have already introduced 192 new S-stock trains on the Circle, District, Hammersmith & City and Metropolitan lines, and are working to complete the associated depot, station, siding and signal modifications to accommodate them. We are upgrading three depots to support new train maintenance.

The new automatic train control signalling system will control train movements, enabling more frequent and reliable services. In addition to designing and installing the system, we are working on the related infrastructure and fitting S-stock trains and engineering vehicles with in-cab signalling equipment.

The first section of the new signalling system on this extensive modernisation programme was successfully introduced earlier this year, and is now operating between Hammersmith and Latimer Road. It is the first part of the network to benefit from the improvements. The performance since introduction has been better than predicted, based on reliability recorded during systems testing.

In Quarter 3, we reported potential emerging cost pressures to impact the EFC with an expected range of £10m to £50m. In Quarter 4, a review of the programme schedule and EFC was undertaken, focussing on assurances over key forecast assumptions and risk exposure, supported by an extensive senior management review. The outcome of this review has led to an EFC increase of £34m over the 2019 Business Plan. Work continues on driving improved outcomes in the EFC, aligned with delivering the programme benefits ahead of schedule. The EFC of £5,301m remains £111m under authority. This has been achieved by an aggressive schedule aimed at delivering the benefits ahead of the required authority milestone dates, value engineering solutions, innovation, and providing the optimum scope to bring about the planned benefits. We remain committed to this methodology and are working with the main contractor to identify and realise potential savings with a view to driving the EFC back to the Business Plan or below.

All trains are being fitted with automatic train control equipment. We have now fitted a total of 165 trains (112 S7 trains – which has supported communications-based train control (CBTC) in the first Migration Area – and 53 S8 trains) out of 192 trains in readiness for CBTC on the Circle, District, Hammersmith and City and Metropolitan lines. All S-stock trains are now forecast to be delivered in summer 2019, to support all planned launch dates.

As part of the upgrade to CBTC, modifications were made to some of the track points and crossings. Track layout works have now been completed on a set of points at Farringdon, and the Farringdon double junction project is also complete.

Commissioning of the final signalling area between Rayners Lane and Uxbridge remains on schedule to support the final service increases in 2023.

Assurance

Project Assurance completed an integrated assurance review on the Four Lines Modernisation programme submission to the Programmes and Investment Committee meeting in October 2018. A quarterly update was provided to the Committee on 6 March 2019 on the 15 recommendations that were made and accepted, including 11 by the Independent Investment Programme Advisory Group (IIPAG). Six recommendations are closed and good progress is being made to close the remaining nine. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.



Capacity Optimisation – World Class Capacity

Forecast completion year

2024

Spend to date (£m)

112

Spend authority (£m)

245

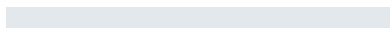
EFC (£m)

209

EFC movement post plan (£m)

(2)

2018/19 budget milestone RAG



This is a programme which includes upgrades to signalling, power, trains and track with the target of maximising capacity on the Jubilee and Northern lines with the existing train fleets. While a lot of the works are standalone, a significant proportion is essential to other programmes, including further upgrades to the Jubilee line and the Northern Line Extension.

The World Class Capacity programme is also delivering the signalling works for the Northern Line Extension and Bank station capacity upgrade.

To enable the new capacity works, we have completed speed improvement and track works to the Northern line and begun power enhancement works with the award of a design and build contract to Balfour Beatty.

Enhancements to the Jubilee line continue, and include improving the speed at which trains exit the depot onto the mainline at Neasden. Train crew accommodation enhancement works at North Greenwich have also been completed.

Assurance

Project Assurance completed an integrated assurance review on the World Class Capacity programme submission to the Programmes and Investment Committee meeting in July 2018. A quarterly update was provided to the Committee on 6 March 2019 on the six recommendations that were made and accepted, including three by the IIPAG. All recommendations are now closed.

The EFC has increased by £2m compared to the 2018 Business Plan, driven by works at Neasdon Depot, which are required to enable the Jubilee line capacity improvement programme. This will increase the capacity to 32 trains per hour on the central section at peak times by the end of 2021.



Renewal of existing London Underground assets will improve safety, reliability and maintain resilience



Capacity Optimisation – DLR Rolling Stock and System Integration

Forecast completion year

2025

Spend to date (£m)

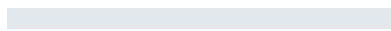
15

Spend authority (£m)

EFC (£m)

EFC movement post plan (£m)

2018/19 budget milestone RAG



New DLR trains and infrastructure are vital to support the ongoing regeneration of east London, including housing growth and business opportunities.

We continue to achieve key milestones in all areas. There have been no accidents or injuries.

The programme will replace the 60 per cent of existing DLR fleet that is nearing the end of its design life and provide additional trains, which will increase capacity to meet the projected housing and employment growth in the Docklands area. The depot at Beckton will be extended, with further sidings for the new trains, a new maintenance facility and an extended automatic train operation test track. The Thales automatic train operation signalling system also needs updating and the traction power system needs to be strengthened.

On 11 December 2018, the Programmes and Investment Committee granted authority to procure 43 DLR trains to increase capacity and to replace approximately 60 per cent of the existing fleet (33 trains) and for the associated enabling works.

* This information is withheld for reasons of commercial sensitivity

At post quarter end, following an extensive period of review and negotiation, a contract for the supply of the next generation of DLR trains was awarded to CAF of Spain in June 2019.

The depot concept design has been accepted and a detailed design contract let for the enabling works and sidings design. Topographical, drainage and geotechnical surveys are complete. A tender for the design and build of the sub-station modifications has been issued. We remain on track to commence Beckton depot enabling works in summer 2019.

Workshops with KeolisAmey Docklands are underway to plan how the operational service will be maintained during the depot enhancement works, and detailed operational modelling for the early stages was completed. A contract has been awarded to UK Power Networks to secure additional power supplies. Negotiations continue with Thales to agree the scope of services for the signalling upgrade required to support the replacement rolling stock.

Assurance

Project Assurance completed an integrated assurance review on the DLR Rolling Stock Replacement programme submission to the Programmes and Investment Committee meeting in December 2018. A quarterly update was provided to the Committee on 6 March 2019 on the five recommendations that were made and accepted, including three by the IIPAG. Good progress is being made to close the recommendations. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.



Siemens has started to develop the Piccadilly line rolling stock concept design

Deep Tube Upgrade programme



Deep Tube Upgrade programme

Forecast completion year

2030/31

Spend to date (£m)

112

Spend authority (£m)

3,294

EFC (£m)

3,111

EFC movement post plan (£m)

(2)

2018/19 budget milestone RAG



The Deep Tube Upgrade programme will deliver new signalling systems and a fleet of newly designed, high-capacity, walk-through, air-cooled trains to replace some of the oldest on our network. The initial focus is on the upgrade of the Piccadilly line and the introduction of new trains.

Quarter 4 saw the completion of the Siemens 100 day plan with contract and team mobilisation delivered as planned. Following the award of the Piccadilly line rolling stock contract, Siemens have started to develop the Piccadilly line rolling stock concept design. The next key step to achieve completion of the concept design is the delivery of all train-related interface control documents by the end of Quarter 1 2019/20.

Seventeen position detectors (which give the position of the train on the platform) were commissioned at Oakwood and Hatton Cross, with work ongoing to complete this at Heathrow. Commissioning works are required at a further seven sites (38 position detectors) to replace the existing equipment which is incompatible with the new Piccadilly line trains.

We have issued the One Person Operation CCTV (OPO CCTV) Invitation to Tender as planned in March 2019. The OPO CCTV will allow train operators to ensure safe departure of the train from the platform in all driving modes. We aim to award the OPO CCTV contract in Quarter 3 of 2019/20.

The EFC and spend authority relates only to works and enabling associated with the introduction of the Piccadilly line rolling stock. Work continues to support the case to gain funding for additional scope for the Deep Tube Upgrade programme, which forms part of a wider programme EFC.

A contract was signed with Siemens to design and build 94 Tube trains to replace the existing 1970s fleet. The increase since the Business Plan is a result of further refinement in the baseline. The main movements relate to omission of required train testing works, offset by reductions in risk exposure and refinement of the train costs and programme resources. The programme will have completed a rebaselining exercise by the end of June with a view to identifying further opportunities to bring the EFC back to the Business Plan.

Network extensions



Northern Line Extension

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
**	745	*	*	*

2018/19 budget milestone RAG

This project provides 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.

At Nine Elms station, completion of concrete pours for the track formation alongside the platforms has allowed for running track to be installed through the station. All columns for both the eastern and western superstructures are complete and now stand at full height. The final pour for the roof slab of the eastern superstructure is complete, allowing blockwork to commence at ground floor level.

At Battersea station, blockwork construction work continues on the internal walls to form the rooms in the new station. Following the removal of the last tower crane, installation of the precast coffered panels, which form the ticket hall's signature architectural ceiling, is now complete. The removal of the tower crane has also allowed the completion of the construction of Prospect Way on behalf of Battersea

Power Station Development Company (BPSDC). The Prospect Way structure spans the station box and supports the roadway to the west of the main entrance. The various utility supplies for the station are set to be installed within the roadway. A jetty which facilitated the removal of excavation waste from the site by river barge rather than using Heavy Goods Vehicles has been decommissioned and handed back to BPSDC. The benefits of using the jetty include reduced toxic pollutants, substantial carbon savings and reduced congestion on roads caused by lorries.

At Kennington Park, the ground floor concrete slab and columns for the head house are complete. At Kennington Green, the head house structure and parapets are complete. Construction of the head house's ground floor internal and external walls continues.

* This information is withheld for reasons of commercial sensitivity

** The end of December 2020 target opening date is currently under review. This is driven by the need to adapt the construction programme as the designs for Battersea Power Station's over-station development and Tube station have evolved

Installation of all running track in the tunnel sections across the Northern Line Extension is complete, enabling deliveries by engineering train to be made deeper into the extension, and the installation of conductor rail is under way. The final piece of track – the diamond crossing in the Battersea crossover box – will be installed by June 2019.

The first of the Northern Line Extension's 16 tunnel ventilation fans was successfully tested and will provide temperature and smoke control in the Battersea station western core.

Assurance

Project Assurance completed an integrated assurance review on the Northern Line Extension programme submission to the Programmes and Investment Committee meeting in December 2018. A quarterly update was provided to the Committee on 6 March 2019 on the ten recommendations that were made and accepted, including six by the IIPAG. Two recommendations are closed and good progress is being made to close the remaining eight. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.



Silvertown Tunnel

Forecast completion year

2025

Spend to date (£m)

52

Spend authority (£m)

EFC (£m)

EFC movement post plan (£m)

2018/19 budget milestone RAG



The Silvertown Tunnel will tackle traffic congestion at the Blackwall Tunnel and the consequential effects this has on travel, the environment, the economy and growth across the wider east and southeast London area.

Bidders submitted their final technical, commercial and financial proposals in February 2019. In May, we selected Riverlinx Consortium as the preferred bidder to build the Silvertown Tunnel.

Pre-construction activities to facilitate a smooth start to construction, once the contract is awarded, have continued. This includes the design for enabling works packages following completion of concept designs for the replacement North Greenwich car parks last year. We continued monitoring existing structures in the area before the main tunnelling works commence, and started noise monitoring ahead of the start of construction. We are working with utilities companies to agree how to progress early investigation and service diversions.

The tunnel will connect Silvertown and the Greenwich Peninsula, which are areas being developed by third parties with numerous tenants and landowners.

We have been establishing third-party agreements with them and are negotiating land access. We have been developing our consent obligations and finalised the agreement with the Royal Borough of Greenwich to ensure benefits of the tunnel are maximised and the area around the tunnel is enhanced.

Assurance

An integrated assurance review commenced in February 2019, which will support selecting the preferred bidder in May and contract award in the summer. A quarterly update was provided to the Committee on 6 March 2019 on the 10 recommendations that were made and accepted, including six by the IIPAG. Eight recommendations are closed and good progress is being made to close the remaining two. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

* This information is withheld for reasons of commercial sensitivity



Barking Riverside Extension

Forecast completion year

2022

Spend to date (£m)

34

Spend authority (£m)

EFC (£m)

EFC movement post plan (£m)

2018/19 budget milestone RAG



We are delivering a new rail link to serve the 10,800 new homes that are 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 Barking Riverside. Train services are planned to start in 2021.

The main works contract was awarded in December 2018 to a joint venture of Morgan Sindal and VolkerFitzpatrick. Early overhead line equipment works were procured separately and completed over Christmas 2018, to enable subsequent possessions of Network Rail infrastructure by the main works contractor

Following contract award, the focus has been on mobilisation of the joint venture team, completing environmental surveys, securing planning approvals for the viaduct and new station, and establishing structural monitoring on the High Speed 1 tunnels – which the new link will cross. We have removed redundant wagons from the site and undertaken initial ground works including test piling. Readiness reviews are being undertaken to support the critical Network Rail possessions and blockade planned for later this year. To enable the summer 2019 blockade, we continue to work with stakeholders to secure the required network change approval.

Assurance

Project Assurance completed an integrated assurance review on the Barking Riverside Extension programme submission to the Programmes and Investment Committee meeting in December 2018. A quarterly update was provided to the Committee on 6 March 2019 on the seven recommendations that were made and accepted, none by the IIPAG. Two recommendations are closed and good progress is being made to close the remaining five. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

* This information is withheld for reasons of commercial sensitivity

Major stations

Victoria station upgrade and finishes

Forecast completion year

2019

Spend to date (£m)

577

Spend authority (£m)

604*

EFC (£m)

582

EFC movement post plan (£m)

(1)

2018/19 budget milestone RAG



We have built a new north ticket hall, 300 metres of subways and increased the size of the south ticket hall by 50 per cent. Step-free access to all platforms will meet the needs of the 83 million customers who use the station each year.

The EFC has increased by £1m since the last quarter to £582m, £21m below authority. The EFC reflects the latest forecasted completion date.

Station capacity has increased with the upgrades which opened in stages, with almost all new passenger-facing facilities now fully available. One escalator is being refurbished, and a small amount of work to complete ceiling panels, tiling and platform and walkway surfaces remains. Project completion is on target for the summer.

* The spend authority for the Victoria station upgrade has decreased from £612m in Quarter 3 to £604m in Quarter 4 following reallocation to the Holborn station capacity project



Bank Walbrook

Forecast completion year

2019

Spend to date (£m)

58

Spend authority (£m)

58

EFC (£m)

59

EFC movement post plan (£m)

(1)

2018/19 budget milestone RAG



We have built a new entrance for the Waterloo & City line on Walbrook, with connections to the existing concourse, which was commissioned in November 2018.

The facility was constructed by Bloomberg on behalf of TfL, with a formal opening in December 2018 attended by the Mayor of London Sadiq Khan, Michael Bloomberg and Transport for London Commissioner, Mike Brown.

The EFC now reflects the final account settlement with the main contractor and is aligned to the 2018 Business Plan.



Work continues to upgrade Bank station on the London Underground



Bank station upgrade

Forecast completion year

2022

Spend to date (£m)

420

Spend authority (£m)

656

EFC (£m)

656

EFC movement post plan (£m)

0

2018/19 budget 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 to reduce customer journey times.

The ongoing tunnelling works are progressing well, with the majority of the new infrastructure already tunnelled. In March, the first breakthrough between the new entrance on Cannon Street and the newly constructed Northern line tunnel was made. The breakthrough will make further construction work easier, helping to ensure the upgrade is delivered by 2022. Tunnelling works for the new lift shaft continue, delivering step-free access to the Northern line and improved step-free access to the DLR in 2022.

At the site of the new entrance, we have excavated an area 30 metres deep to allow for the construction of the new station entrance onto Cannon Street. The structure, which will form the new station entrance, is 80 per cent complete with the first of three new escalator barrels completed.

The EFC has remained static since last quarter and is aligned to the 2018 Business Plan.



Bakerloo line link

Forecast completion year

2019

Spend to date (£m)

74

Spend authority (£m)

76

EFC (£m)

75

EFC movement post plan (£m)

(6)

2018/19 budget milestone RAG



A new step-free pedestrian walkway at Paddington is being constructed to link the Bakerloo line platforms with the new Elizabeth line station.

The new pedestrian walkway will provide step-free access from the Bakerloo line to the new Paddington Elizabeth line station. Two new escalators and a new lift have been installed.

On 30 November 2018, the project completed the testing and commissioning works, which enabled the Bakerloo line link tunnel to be ready for trial running and integration with the Elizabeth line.

The planned final integration testing identified a couple of issues that need to be addressed. These are being progressed and are due to be completed by the end of the summer.

The EFC has increased by £6m since the last quarter to £75m. This was the result of reaching a settlement agreement with the contractor as part of the final accounts.



New escalators connect the Bakerloo line to the Elizabeth line at Paddington station



Holborn station capacity

Forecast completion year

2031

Spend to date (£m)

5

Spend authority (£m)

13

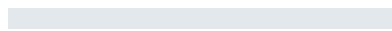
EFC (£m)

13

EFC movement post plan (£m)

0

2018/19 budget milestone RAG



The proposed upgrade will see the station more than double in size, increasing capacity by around 140 per cent, as well as creating a second station entrance and exit on Procter Street. Step-free access to both lines will also be provided as part of the plans, with the installation of three new lifts in the existing Kingsway entrance. Seven hundred metres of tunnel will create new interchange routes between the Central and Piccadilly lines, helping to reduce crowding during peak periods.

As stated in our updated Business Plan of December 2018, the proposed capacity upgrade to Holborn station has been re-phased subject to funding and consents.

We are still very much committed to the Holborn project given how crucial it is to the West End and the upgrade of the Piccadilly line. Our work so far includes developing the scheme proposals and carrying out our first public consultation.

The EFC represents early stage works, including concept design and Transport and Works Act Order preparation, and is aligned with the current spend authority. Work continues beyond this stage, forming part of a wider EFC. The Authority and EFC has increased by £8m since last quarter to reflect the next tranche of works to develop the Transport and Works Act Order and associated works in line with the 2018 Business Plan. The project and procurement has since paused, pending the 2019 Business Plan review.



Camden Town station capacity upgrade

Forecast completion year

TBC

Spend to date (£m)

10

Spend authority (£m)

24

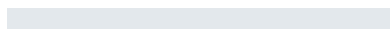
EFC (£m)

24

EFC movement post plan (£m)

0

2018/19 budget milestone RAG



The station upgrade will provide a new, fully-accessible entrance north of the station which will connect to the existing platforms by tunnels.

As our 2018 Business Plan explains, we are reliant on steady and sustained investment from the Government to support major capital investment. We currently have no certainty of capital funding beyond 2020 and, over the next year, we will be making the case to Government for confirmed capital support to enable critical infrastructure projects, such as the capacity upgrade to Camden Town station.

In the meantime, we continue to look to identify third-party funding and work with potential development partners, which could help fund the new station entrance and capacity improvements.

Assurance

Project Assurance completed an integrated assurance review on the Major Stations programme submission to the Programmes and Investment Committee meeting on 6 March 2019. Nine recommendations were made and accepted, including five by the IIPAG. Four recommendations are closed and good progress is being made to close the remaining five. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

The EFC represents early stage works, including concept design and Transport and Works Act Order preparation along with property purchases, and is aligned with the current spend authority. The EFC has remained static since last quarter and is aligned to the 2018 Business Plan.



We are creating a transport system where everyone can travel safely by the healthiest and most resource efficient means

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.

Learning lessons from Crossrail, the Crossrail 2 team are working to further strengthen our assurance processes and are setting up a number of Expert Review Groups (ERGs). The ERGs will scrutinise, challenge and verify the outputs of the project team's work, focussing on the areas of scheme development, case-making analysis and cost and risk. In addition to the ERGs, an Independent Assurance Panel will soon be confirmed. This will be the overarching review group providing independent assurance to the Crossrail 2 sponsors and Senior Responsible Owners concerning the planned and in-progress development of the project, the quality and rigour of outputs, and proposals for delivery of the scheme.

The team continues to work closely with the Department for Transport and Network Rail colleagues to refine the scheme as we prepare to submit our Strategic Outline Business Case to Government in the summer. Discussions on the plans to consult and update the 2015 Safeguarding Directions continue.

An extension and upgrade to the Bakerloo line will improve connectivity, increase capacity of the transport network and reduce journey times to key destinations across London. This would support development and regeneration, particularly in South East London, including supporting at least 20,000 new homes in the Old Kent Road Opportunity Area, while also ensuring that our existing network is upgraded and modernised. We continue to develop the scheme and refine the proposals prior to further public consultation.

London Underground

Stations 

Forecast completion year
2023/24

Spend to date (£m)
1,995

Spend authority (£m)
3,207

EFC (£m)
2,533▲

EFC movement post plan (£m)
0

2018/19 budget milestone RAG 

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

The EFC, which covers all projects including those completed within the stations programme, has increased from £2,440m at Quarter 2 as it now includes the financial year 2023/24.

Integrated stations programme

We have completed works on eight stations, (Barbican, Charing Cross, Ealing Broadway, Holland Park, Paddington, Sloane Square, Vauxhall and Whitechapel), including three that will interchange with the Elizabeth line.

Station enhancements

At Finsbury Park, work on the new western station entrance continues and we plan to open it in late 2019.

We have completed the concept design for the South Kensington station capacity upgrade project and we plan to appoint a design and build contractor by summer 2019 to deliver the works.

We will provide step-free access at Knightsbridge and build two new entrances on Brompton Road and Hooper's Court in partnership with a developer, who will enable and part-fund the works. The civils works on the lift shaft to the platform were completed in June.

We continue the redevelopment and upgrade of Tottenham Hale station. The new station structure is in construction. The next stage of the programme is dependent on working on Network Rail infrastructure to complete the new station interchange building.

Concept design for Colindale station is now complete and the next phase will be to procure detailed design. 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.

Developer funded works

We are working with Berkeley Homes to create a new entrance at West Ham station with step-free access between the entrance and Berkeley's development site. The developer's consultants have drafted the concept design specification documents and we are working with the developer to finalise legal agreements.

We continue to work with Canary Wharf Group to deliver a new station entrance and three new escalators at Waterloo. Communications and public announcement systems installations are almost complete and the new entrance was opened in spring 2019.

We are creating 11 retail units in the railway arches beneath Wood Lane station, where we continue front and service installation works.

Collaborative enhancements and third-party projects

In July, the London Borough of Southwark recommended that planning permission be granted for a new town centre at Elephant and Castle, subject to legal agreement and approval by the Greater London Authority (GLA) and the Secretary of State. We continue to await final approval on the Section 106 agreement with the developer and the London Borough of Southwark. As part of the development, a new station box with connecting tunnels to the existing platforms will be built to increase capacity at the station and provide step-free access to the Northern line.

At Paddington, we are working with Great Western Developments to construct a new entrance to the Bakerloo line, with a much-enlarged ticket hall and step-free access to the platforms, as part of its redevelopment of adjacent buildings. We continue to collaborate with Great Western Developments and its consultants to confirm the scope, agree commercial terms and finalise a Works Agreement before starting the concept design phase.

At Stratford, we continue to work with stakeholders to consider access and capacity improvements. This includes working with the London Legacy Development Corporation on reviving proposals for a new entrance and ticket hall to serve the Carpenters Road area, along with improvements to step-free access and capacity in the adjacent subway.

Assurance

Project Assurance completed an integrated assurance review on the Stations programme submission to the Programmes and Investment Committee meeting in July 2018. A quarterly update was provided to the Committee on 6 March 2019 on the eight recommendations that were made and accepted, including three by the IIPAG. Three recommendations are closed and good progress is being made to close the remaining five. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.



We continue to consider access and capacity improvements to Stratford station

Accessibility



Forecast completion year

2023/24

Spend to date (£m)

35

Spend authority (£m)

244

EFC (£m)

165▼▼

EFC movement post plan (£m)

25

2018/19 budget milestone RAG



We are working on a wide programme of accessibility improvements, customer service and information enhancements across the Underground network. We will make over a third of stations accessible by 2020 by providing step-free access at a further 15 stations.

The EFC has decreased from £197m at Quarter 2 as there is reduced funding available in the 2018 Business Plan.

Fifteen stations will become step-free by spring 2020 as part of the Mayor's funding for step-free access. Having upgraded two stations in 2018, we delivered step-free access at South Woodford in March. We converted the existing steps to the westbound platform to create ramped access. As part of the fire strategy, we have provided platform places of relative safety and an additional fire escape. We also upgraded the lighting system, installed improved signage and repaired the station building.

Design and build contracts are in place for a further 12 stations (Amersham, Burnt Oak, Cockfosters, Debden, Hanger Lane, Harrow-on-the-Hill, Ickenham, Mill Hill East, Northolt, Osterley, Sudbury Hill and Wimbledon Park). These all include the construction of new lifts and overbridges, and other assets will be upgraded while we carry out these works. We have started works at a number of these stations and works will continue for the rest of this year, with these stations all planned to be step-free by spring 2020.

We have completed early stage designs for more step-free stations to be delivered in the mid-2020s.

Track renewals

Forecast completion year

Annual

Spend to date (£m)

115

Spend authority (£m)

107

EFC (£m)

115▲

EFC movement post plan (£m)

(9)

2018/19 budget 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.

On 16 February, we achieved our target for this financial year to install 7.5km of new track across the London Underground network.

We replaced more than 1.2km of ballasted track, which included 424 metres of renewal at Sudbury Town and 328 metres at Ravenscourt Park. We also replaced more than 220 metres of drainage in this quarter.

On our deep Tube track network, we replaced more than 2km of an older track with modern flat bottom rails and renewed a further 1.5km of concreted deep Tube track.

Balfour Beatty was awarded the new track delivery partner contract, which started in April 2019.

Assurance

Project Assurance completed an assurance review in February 2018. An update was provided to the Committee on 6 March 2019 on the seven recommendations that were made and accepted, none by the IIPAG. Six recommendations are closed and good progress is being made to close the remaining recommendation. Project Assurance tracks progress against the recommendations made as part of its continuous assurance.

The EFC has increased to £115m from Quarter 3 due to the business decision to implement its delivery recovery plan following the loss of 2.5km of ballasted track renewals and drainage due to TransPlant asset availability and industrial action during the first half of 2018/19.

The successful delivery of this recovery plan ensured that the Track Programme delivered its annual milestone of 7.5km of full track renewal.

Power, cooling and energy

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2023/24*	44	90	133	0

2018/19 budget milestone RAG 

Our renewals programme aims to improve safety, reliability and legal compliance of our power assets, introduce cooling in key locations to improve the customer experience and increase the energy efficiency of our assets.

Power

We continue to support the delivery of a number of third party and major projects by providing power works, such as relocating the substation at Euston for High Speed 2, installing cable routes for the Northern Line Extension and works for the Deep Tube Upgrade, and the Bank Station Capacity Upgrade.

We are delivering a new portfolio of power renewal works to improve asset condition through a prioritised work bank of projects. Installation work on the first projects has started, with designs for the next priorities having reached approval stage. The previous work bank of power renewals, which has been operative since 2015, is nearing completion.

We have started to commission specialist compensation equipment at Greenwich Power Station that protects the Four Lines Modernisation network’s resilience by improving the quality of the power supply, which is forecast to be completed in the second quarter of 2019/20.

We have agreed the procurement strategy to extend the life and address immediate obsolescence risk by consolidating three power control systems to a single system. The system, once completed, will remotely monitor and safely operate traction, station, signalling and depot power supplies.

Cooling

We have completed works at Bond Street station to provide improved airflow to the new Elizabeth line tunnel, and we plan to close the site by summer 2019.

* The figures represent power and energy projects until 2023/24

Energy

To install solar panels at the Acton workshop, the roof would require remediation at a significant cost, so we have put this site on hold and are assessing the feasibility of installation at alternative sites, to meet the Mayor's solar commitment.

Assurance

Project Assurance completed an integrated assurance review on the Power, Cooling and Energy programme submission to the Programmes and Investment Committee meeting in July 2018. A quarterly update was provided to the Committee on 6 March 2019 on the 13 recommendations that were made and accepted, including eight by the IIPAG. Nine recommendations are closed and good progress is being made to close the remaining four. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

Rolling stock renewals



Forecast completion year

2029

Spend to date (£m)

228

Spend authority (£m)

618*

EFC (£m)

1,092▲

EFC movement post plan (£m)

(80)

2018/19 budget milestone RAG



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

We are carrying out improvements to ensure continued reliability of the Bakerloo line fleet until its replacement by the Deep Tube Upgrade programme. We have completed structural weld repairs to carriages on all 36 trains and a vinyl retrofit, due to a change in design, of the first eight is planned to complete in autumn 2019.

On the Jubilee line, 44 out of 63 trains have been refurbished and are back in service. The refurbishments include a wheelchair area, new flooring, refreshed interior (including grab-poles and handles), and new sealing to the roof and windows. We have now started to install the new priority seating moquette.

The EFC increase from £1,012m at Quarter 3 mainly relates to the incorporation of Central line programme lift, an update to Central line improvement programme risk and an expected increased spend on the new train maintenance workshop at Acton.

* The authority is lower than the EFC as authority is sought in stages

On the Central line improvement programme, we have delivered two carriages to the Bombardier test site to start prototyping the new AC traction system. We have awarded the new flooring contract and installed a dust extraction system at Acton works to facilitate the delivery of the Central line improvement programme.

The manufacture of seven pre-production wagons in China will begin soon, following design sign off. These wagons will be tested and shipped to the UK in November 2019, for full inspection and approval, before production begins of the remaining 64 new wagons that will support track renewal and maintenance activities.

We have received tender responses for the design and build of the prototype mechanised renewal vehicle, which will eventually change the way we renew track in the deep Tube.

The Ardelt cranes and tilting wagons are undergoing final tests before being shipped to the UK from Germany by December 2019.

Following an evaluation exercise, we have selected the option for replacing our track recording vehicle, which records and monitors the alignment and condition of the track.

The construction of the new train maintenance workshop at Acton has progressed on site. We have started the final round of design evaluations and work is under way to finalise the underground services and foundations.

A project is under way to improve cab security providing train operators control over unauthorised entry into their cab from the saloon.

Assurance

Project Assurance completed an integrated assurance review on the Rolling Stock Renewals programme submission to the Programmes and Investment Committee meeting on 6 March 2019. 14 recommendations were made and accepted, including ten by the IIPAG. Three recommendations are closed and good progress is being made to close the remaining 11. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.



Piccadilly line signalling control system migration is set to complete by the end of 2019

Signalling and control



Forecast completion year

2023/24

Spend to date (£m)

72

Spend authority (£m)

143

EFC (£m)

188

EFC movement post plan (£m)

0

2018/19 budget milestone RAG



We are extending the life of our track-based signalling and control assets until they are replaced by either the Four Lines Modernisation or the Deep Tube Upgrade programmes. This ensures that they can continue to support a safe, reliable and maintainable service until then.

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

We have commissioned approximately two thirds of the new Piccadilly line signalling control system at the control centre in west London. The migration of control between Acton Town and South Harrow was achieved in February 2019. The programme is progressing well and all remaining migrations are planned to complete by the end of 2019.

Assurance

Project Assurance completed an integrated assurance review on the Signalling and control programme submission to the Programmes and Investment Committee meeting on 6 March 2019. Nine recommendations were made and accepted, including four by the IIPAG. Good progress is being made to close the recommendations. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

Surface

Healthy Streets

Forecast completion year

2021/22

Spend to date (£m)

443

Spend authority (£m)

957

EFC (£m)

1,759

EFC movement post plan (£m)

0

2018/19 budget 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.

The EFC reflects the 2018 Business Plan up to 2021/22 to provide a direct comparison to the original authority requested. Spend authority is to the end of 2019/20.

Highbury Corner

Construction is progressing well for the major reconfiguration of the road network and removal of the gyratory at Highbury Corner. The footway paving and kerbing works are substantially complete and the traffic switchover to two-way operation took place over the Easter weekend. Urban realm works will continue throughout the summer. All highway works are on track to be completed by late summer 2019.

Wandsworth Gyratory

The purchase of properties from landowners on Putney Bridge Road continues to progress. The last three properties, of the current first tranche of planned purchases, are expected to complete by June 2019. We are working with the London Borough of Wandsworth to ensure the project brings value for money, this includes reviewing whether all land take on Armoury Way is essential. Any changes or a revised layout will be communicated to the public in summer 2019. We plan to start work on site in 2021, at the end of the compulsory purchase process.



Two-way traffic was introduced at Highbury Corner over the Easter weekend

Fiveways

Design assurance is currently under way and a detailed design and build contract is being prepared for issue in August 2019. We will submit a planning application for the scheme in October 2019, and a decision by the London Borough of Croydon is expected by end December 2019. Following planning approval, Board approval will be sought so that the compulsory purchase orders and design and build contract can be progressed.

Vauxhall Cross

The Vauxhall Cross island site planning application was referred to the Mayor in March 2019. The GLA Stage 2 letter and report states that the GLA does not object and that Lambeth can determine the planning application themselves, subject to any action that the Secretary of State for Transport may take. The Secretary of State is yet to review the planning application. Design assurance for the gyratory removal and improved bus station is under way ahead of a detailed design and build contract being issued in summer 2019. Construction work is planned to start in autumn 2020.

Waterloo City Hub

The scheme provides a significant upgrade for the safety and comfort of pedestrians, cyclists and public transport users, with a new pedestrian walking route to the river, improved crossings, segregated cycling facilities and improved bus waiting and boarding areas. The proposed transformational scheme continues to progress well

and the initial concept design has been updated following stakeholder review. Technical approval of the concept design is under way and we are working with our supply chain to commence the detailed design of the scheme. The London Borough of Lambeth recently approved a £2m funding contribution towards delivering these improvements. We continue to work closely with the London Borough of Lambeth and developers in the area, to ensure delivery is coordinated with existing and future plans for Waterloo. We aim to start construction in spring 2020, subject to securing the necessary consents.

Old Street Roundabout

Work is progressing well to transform this critical and busy junction and improve safety for pedestrians. Site investigations and utility diversion works have continued on site at the junction with Cowper Street. Advanced construction works to remove the traffic islands on all four arms of the roundabout are under way. Over the late May bank holiday weekend, we achieved a major milestone by removing the old vehicle-dominated roundabout and replacing it with a two-way traffic system. This is a temporary switch, closing the southeast arm of the junction to traffic to enable construction of a new entrance to Old Street Underground station near to Cowper Street. Later this year, a further switch will be required to reopen the southeast arm and permanently close the northwest arm. Eventually, the project will bring huge

improvements to cycling and walking in the area including fully segregated cycle lanes, a new public space with a new main entrance to the underground station and a new lift to the shopping arcade. Construction is on track to be completed by the end of 2020.

Direct Vision Standard

We are committed to improving safety for vulnerable road users. We have developed the world's first Direct Vision Standard (DVS) to measure the volume of space that a heavy goods vehicle (HGV) driver can see directly from each vehicle's cab. DVS will give regulators, manufacturers, operators and contractors an objective standard to rate and improve the safety of HGVs.

As the DVS and HGV Permit Scheme proposal for London amounts to a technical regulation, we were required to notify the European Commission to ensure that it did not conflict with 'free movement' within the European Union. We were notified on 6 December 2018 that the European Commission had no objections to our proposals.

Following public consultation, statutory consultation started in April 2019 for the introduction of this standard which could be applied to prevent vehicles with the lowest ratings from entering London from 2020. The registration system to enable HGV drivers to apply for DVS permits will go live by the end of 2019.

DVS contributes directly to the Mayor's Vision Zero objective to eliminate death and serious injury from London's roads.

Surface Intelligent Transport System

We are leading the way in terms of delivering innovative new road traffic management systems to make journeys on foot, bike, bus, as well as essential emergency services and freight trips, as efficient as possible. We are working with Siemens to develop the Real Time Optimiser system to 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, with the first release scheduled for late 2020. A separate procurement process is under way to appoint a supplier to design, develop and implement a new incident management system, which will enable us to increase the speed at which we detect and respond to incidents on the road network.

Cycleways

Construction started on 18 March to deliver pedestrian and cycle improvements between Acton and Wood Lane along the A40, with major carriageway works starting in early April. Construction work is also complete at two critical junctions on Edgware Road and Euston Road that will provide significant improvements for people wanting to walk and cycle.



Work continues to deliver improvements across the Cycleways network

Work continues on several major new routes, identified in the Strategic Cycling Analysis published in 2017. Stakeholder engagement for the first four routes was undertaken between January and March 2019 to get views and suggestions on our initial plans. Public consultations for the routes have opened for the cycleways between Hackney and the Isle of Dogs and Ilford and Barking Riverside. We also plan to consult the public later in the year on additional routes including Dalston to Lea Bridge, Greenwich to Woolwich and Camden to Tottenham Hale.

Rotherhithe to Canary Wharf crossing

On 21 June, the Programmes and Investment Committee made the decision, after consultation with members, that the Rotherhithe to Canary Wharf crossing should revert to feasibility so that strategic alternatives, such as a ferry service, can be reassessed. This is due to a combination of increased capital costs for the bridge option, the current financial constraints within the organisation, together with an absence of alternative funding sources.

There remains a strong case for a new river crossing for pedestrians and cyclists between Rotherhithe and Canary Wharf to relieve congestion on existing transport links, encourage more active travel and support good growth in the Canada Water and Isle of Dogs Opportunity Areas. Therefore, investigations are under way for a ferry to be used as potential crossing solution that is more affordable and quicker to deliver. This is alongside the wider investment we are making in walking and cycling across the area, including delivery of Cycleway 4 and new cycle routes from Rotherhithe to Peckham and Hackney to the Isle of Dogs.

Safer Junctions

In April 2017, the Safer Junctions list highlighted the 73 most dangerous junctions on our road network, defined as those with the highest vulnerable road user collision rates between 2013 and 2015. We have now completed work at 29 of these junctions. We continue to review the completed projects to ensure they have successfully reduced collisions, and overall there is currently a 25 per cent average reduction in the incidence of collisions across the improved junctions. We are taking the remaining 44 schemes through design, with 12 scheduled for construction by spring 2020.

Crossrail complementary measures

We are working with the boroughs, Crossrail Limited, Network Rail and Rail for London to develop and deliver a programme of improvements to 17 stations in outer London to create capacity for additional footfall and regenerate the area. So far, Crossrail complementary measures works are complete at five stations (Abbey Wood, Chadwell Heath, Goodmayes, Manor Park and Romford). Site works at eight stations (Forest Gate, Gidea Park, Hanwell, Harold Wood, Ilford, Maryland, Seven Kings and West Drayton) are at various stages of construction. Four stations, (Acton Main Line, Ealing Broadway, Southall and West Ealing) are at design or consultation stage.

The original Crossrail programme has slipped and a new programme is being developed by Crossrail for station works. Complementary works at some stations are dependent on station works and some of the west London stations will be completed later than December 2019, as a result.

Liveable Neighbourhoods

Liveable Neighbourhoods is a key part of the Mayor's Transport Strategy, which aims to create locally-led, attractive, healthy and safe neighbourhoods that encourage walking, cycling and public transport use and reduce car journeys. In 2018/19, feasibility funding was awarded for the first phase of the programme. Proposals for the first seven neighbourhoods include: the creation of a new public space in Crouch End and the introduction of new segregated cycle routes; removing the Greenwich town centre gyratory and reallocating more space to pedestrians and cyclists; and improving Romford town centre by making the busy ring road easier to cross on foot and by bike.

The second phase of funding was launched in February 2019. We received 22 bids from across London, 11 of which were awarded feasibility funding and started development work in April 2019. Projects awarded funding as part of phase two are: Bow (Tower Hamlets), Brixton (Lambeth), City Cluster (City of London), Croydon Old Town (Croydon), Custom House (Newham), Enfield Town Centre (Enfield), Holborn gyratory (Camden), Ilford (Redbridge), Shortlands (Bromley), South Bermondsey (Southwark) and South Chiswick (Hounslow).

Borough Local Implementation Plan projects

Construction of schemes at Baker Street, Beddington, Feltham, Hayes town centre, Stratford gyratory and Tottenham Court Road (West End project) are currently complete or in construction, in accordance with the agreed programmes and budget allocations.

The works at White Hart Lane, in Tottenham, were completed in March 2019. These were accelerated to meet requirements arising from the new Tottenham Hotspur football stadium development particularly for pedestrian capacity in White Hart Lane and other local roads. This will contribute to the regeneration of North Tottenham, along with rail station access improvements.

Construction is planned to start at Hornsey Lane Bridge and the Blackhorse Road junction with Forest Road in spring this year. A safety-orientated scheme for Camberwell town centre on the TfL Road Network is currently in design, and adjoins the Corridors, Neighbourhoods and Supporting Measures borough scheme, under Local Implementation Plan (LIP), which is currently on site.

Most of the Boroughs have now submitted final LIPs following consultation for approval, with a small number of exceptions. These are being assessed in batches for Deputy Mayor approval. We expect all LIPs to be approved by July 2019.

Assurance

Project Assurance completed an integrated assurance review on the Healthy Streets programme submission to the Programmes and Investment Committee meeting in July 2018. A quarterly update was provided to the Committee on 6 March 2019 on the nine recommendations that were made and accepted, including four by the IIPAG. All recommendations are now closed.

Air quality and environment



Forecast completion year

2022/23

Spend to date (£m)

132

Spend authority (£m)

280

EFC (£m)

433

EFC movement post plan (£m)

0

2018/19 budget milestone RAG



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

Ultra Low Emission Zone update

On 8 April 2019 we introduced the new Ultra Low Emissions Zone (ULEZ) in central London. It enforces the world's toughest vehicle emission standard and the first to operate 24/7. The ULEZ has replaced the T-Charge and operates in the same area of central London as the Congestion Charge. The initial running of the scheme has gone well, with customer call centre volumes high on the day of launch but lowered during the first week, and the scheme continues to run smoothly.

In October 2021 the ULEZ will be expanded to the boundary formed by the North and South circular roads. This will expand the zone to 18 times its initial size. A feasibility study to understand the options for delivering the systems and services has concluded. An update on the delivery strategy will be presented to the Programmes and Investment Committee in May 2019.

The EFC reflects the 2018 Business Plan up to 2022/23. The spend authority is less than the EFC as we only requested part approval at the last meeting of the Programmes and Investment Committee.



The ULEZ in central London was introduced in April

Fleet compliance

To help meet the Mayor's air quality objectives in 2021, we are working to ensure that 4,000 of our vehicles are Euro VI compliant by 2020. We completed the fit out of 2,500 buses in January 2019, and all buses in Low Emission Bus Zones will be retrofitted by the end of October 2019.

We have completed seven Low Emission Bus Zones, with the retrofitted vehicles now contributing significantly lower NO_x emissions on these corridors.

The completed bus zones are:

- Putney High Street
- Brixton – Streatham
- A2 Camberwell – New Cross
- A3 Wandsworth – St John's Hill
- High Road (Haringey)
- A12 Eastern Avenue (Homerton Road)
- A5 Edgware Road

Ultra low emission vehicles – rapid charge infrastructure

To support the growing use of zero emission capable taxis and electric vehicles, we are building a network of rapid charge points across London. By the end of March 2019, we installed 177 points, 71 of which are dedicated for taxis. We continue to prepare sites for installation, with the number of live sites estimated to reach 200 by summer 2019. We are also progressing designs for two 'hub' sites, which have multiple rapid charge points, and aim to have the first site live by December 2019.

In addition, residential on-street charging is being installed in 24 boroughs via the Go Ultra Low City Scheme.

Recognising the need for a strategic approach to electric vehicle infrastructure, the Mayor launched the Electric Vehicle Infrastructure Taskforce in May 2018, to look at how much public infrastructure might be needed in London by 2025, and to mitigate any barriers to implementation. An accompanying delivery plan for electric vehicle infrastructure in London, to 2025, will be published in the summer.

Assurance

Project Assurance completed an integrated assurance review on the Air Quality and Environment programme submission to the Programmes and Investment Committee meeting in December 2018. A quarterly update was provided to the Committee on 6 March 2019 on the eight recommendations that were made and accepted, including three by the IIPAG. Good progress is being made to close the recommendations. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

Asset investment



Forecast completion year

2021/22

Spend to date (£m)

237

Spend authority (£m)

303

EFC (£m)

585

EFC movement post plan (£m)

0

2018/19 budget milestone RAG



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

Ardleigh Green Bridge replacement

All four lanes on the A127 successfully re-opened, as planned, in March 2019. Some minor off-peak lane closures will be required while the finishing works are completed until mid-April 2019, followed by the removal of the site compound in May 2019. Discussions with Network Rail have been ongoing to agree the final phase of the railway-side works which have been re-scheduled from December 2018 to 2019.

Power Road Green Bridge replacement

All construction works have been completed and the removal of the site compound was finalised in April 2019.

Woolwich Ferry

We have replaced the three old Woolwich ferries with two new, modern, low-emission vessels that are more reliable and environmentally friendly. The new ferries started operating in early 2019 and offer additional capacity and dedicated cycle facilities, and use a quieter, low-emission engine, helping to deliver the Mayor's ambition to grow river transport and improve air quality.

The EFC reflects the 2018 Business Plan up to 2021/22. Spend authority is to the end of 2019/20. This is the first year without any Government operating grant. As a result, the programme of proactive capital renewals on the road networks has been stopped in the short to medium term, although the safety of the network will be maintained. In the medium to long term, new sustainable funding sources for London's roads will need to be identified.

The new ferries provide 14 per cent more space than the old vessels, can carry 150 passengers, have a total of 210 metres of space for vehicles across four lanes, and have improved accessibility with separate areas for pedestrians and cyclists.

The boats are powered by hybrid-propulsion engines, improving fuel efficiency and reducing noise. They are fitted with equipment to reduce emissions of diesel particulates by 90 per cent and NO_x by 70 per cent, so the vessels are compatible with the emission standards for the ULEZ. This innovative technology is the first of its kind to be used in the UK and led to a longer than anticipated commissioning and testing period for the ferries, and some periods of service suspension following re-entry into service. However, since the service was introduced, crossings per hour have now moved from three to four on a consistent basis and technical reliability has also improved (although there has been some weather-related disruption).

Bus driver facilities

Providing bus driver facilities aligns with the Mayor's Transport Strategy by ensuring that the bus network is operationally efficient and reliable. This project ensures we can run a safe and efficient bus network and that our bus drivers have the basic facilities required at work.

Good progress has been made since the Mayor announced increased funding for bus driver facilities in February 2018. A total of 25 priority routes will have a facility installed by the end of March 2019.

We are currently working to deliver facilities on a total of 42 routes by this year. The majority of these new facilities will be standalone permanent toilet units, adjacent to the bus stands where they are required. Where possible, however, we are adapting existing infrastructure to ensure integration with the local environment. So far, we have been able to do this to eight sites.

Assurance

Project Assurance completed an integrated assurance review on the Asset Investment programme submission to the Programmes and Investment Committee meeting in October 2018. A quarterly update was provided to the Committee on 6 March 2019 on the 12 recommendations that were made and accepted, including five by the IIPAG. Five recommendations are closed and good progress is being made to close the remaining seven. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.



Investment across London Overground will help improve access and capacity

Public transport

Forecast completion year

2021/22

Spend to date (£m)

199

Spend authority (£m)

347

EFC (£m)

394

EFC movement post plan (£m)

0

2018/19 budget milestone RAG

We maintain the safety, reliability and performance of London Buses, London Overground, DLR, London Trams, Emirates Air Line, Santander Cycles and London River Services through prioritised renewals and enhancements that support growth, housing and jobs, and improve travel choices.

London Overground

We are continuing construction of the new ticket hall at White Hart Lane station to increase capacity and improve accessibility. We have completed extensive ground works and are progressing with the superstructure. The station and existing ticket hall remain operational throughout the works with the new ticket hall planned to be opened in late summer 2019.

Works have been completed at Willesden Depot to accommodate the new Class 710 Fleet.

We are designing a train protection warning system for the Richmond to Gunnersbury branch to enable us to interchange the fleet between lines and improve reliability across the network. Construction works are due to start late summer.

An Access for All scheme is under way at West Hampstead station. Access for All funding has been secured for enhancements to Hackney Downs and Seven Sisters stations to bring full step-free access to customers. We are developing an enhanced station at Surrey Quays with the local developer, British Land, to ensure the station is capable of catering for the additional 12,000 homes planned.

The EFC reflects the 2018 Business Plan up to 2021/22. The spend authority is less than the EFC as we only requested part approval at the last meeting of the Programmes and Investment Committee.

Other live projects include lift maintenance at Wapping station, retaining wall renewal works on the East London line, new security for the Thames tunnel and a new hot train wash facility at New Cross Gate Depot.

Since 18 March 2019 and the return of the last three Class 172 trains, our operator, Arriva Rail London has been running a service of two trains per hour (reduced from four) on the Gospel Oak to Barking line on weekdays and weekends. We modified three trains from our Class 378 fleet, converting them from five-car to four-car length, allowing us to maintain overall capacity.

A supplementary bus service has also been in place on the Gospel Oak to Barking line to mitigate the reduced train frequency.

We have been in constant contact with Bombardier to ensure they are doing everything they can to address software issues to enable us to bring all of the new Class 710 electric trains into service as soon as possible. Driver training is progressing and the approval certificate from the Office of Rail and Road was received in May, allowing the first two trains to begin passenger service. They are being monitored closely before more units are added.

We are progressing with a design for updated signalling to enable the East London line to run 18 trains per hour.

DLR

We have undertaken two successful testing phases of the vehicle control centre project. This will simplify the signalling borders around the central section of the railway and remove conflicts that can occur when trains move from one section to another.

We have completed low-voltage renewal works at Pontoon Dock, Poplar High Walkway and West India Quay concourse, and testing and commissioning will follow thereafter.

We have completed the drainage, bridge bearing, tunnel remedial and noise barrier projects as well as resurfacing and drainage at Crossharbour, Prince Regent Concourse and Royal Victoria Bridge. Station canopy drainage designs have been finalised.

Track renewals have successfully been completed with the majority of works being undertaken outside of weekend closures, allowing the service to remain operational. Custom House station upgrade fit out works are progressing while the station remains operational.

Public address system installation has been delivered at Tower Gateway, Limehouse and Heron Quays. The main radio resilience works have been completed with testing and commissioning planned for this financial year.



Track renewals on the DLR are now successfully complete



A number of initiatives have been completed to make the tram network safer

Works are progressing well with the refurbishment of CT30 DLR shunter locomotive. We continue repairs on the B2007 vehicle fleet.

London Trams

As part of our commitment to make the tram network safer following the tragedy at Sandilands in 2016, we are continuing to address the recommendations from the Rail Accident Investigation Branch. We have completed a number of initiatives and are currently in the delivery phase of the iTram performance monitoring system and the Physical Prevention of Over-Speeding automatic braking system. We are evaluating the design for tram emergency lighting, and the award of a contract to provide enhanced lighting in the Sandilands tunnel is pending.

The renewals programme consists of 17 projects across seven asset groups including fleet, power, and permanent way infrastructure. Overhauls of the hydraulic power units and brake callipers on the Bombardier CR4000 fleet have been completed ahead of schedule and to budget. The bogie overhauls continue to gather pace with half of the CR4000 bogies overhauled to date.

Replacement of the parafil support wires, which hold up the overhead power lines, started by the in-house maintenance team in September, and this year's renewal programme has been delivered. Additional design work for the rebalancing of power within the tram depot has been finalised and a new delivery contractor will soon be appointed to deliver the works.

Following the switch to cashless trams in July 2018, the existing ticket machines, which date back to the opening of the system, have been removed from tram stops in Croydon town centre (Reeves Corner to East Croydon). The remainder will be removed by summer 2019, and the newly available space at our tram stops will provide additional platform capacity, seating and information boards, depending on location.

Construction works have completed and regulatory approval has been granted to reinstate automated operation of the points at East Croydon tram stop. The training of operational staff is currently being agreed between Tram Operations Limited and London Trams. Once complete, this will improve local operations at East Croydon and increase the resilience of the tram network, particularly in the town centre.

Discussions are ongoing with Network Rail on a revised programme for completing the outstanding works at Wimbledon.

Strengthening to the foundations of two Victorian bridges at Blackhorse Lane has been completed, and services diversions are ongoing while parts of the existing bridge decks are replaced, resulting in a series of tram closures. Most of the construction work is scheduled to take place in 2019, with the work forecast for completion in 2020.

Tram track renewals between Addiscombe Road and Blackhorse Lane are ongoing and involve closures over six weekends, three of which have been successfully completed to date. The works are due to be completed in 2019.

Replacement of the Ampere Way retaining wall has commenced and site works are progressing. The works are expected to be completed by the summer of 2019.

The systems obsolescence management project has completed the detailed design work and is due to commence enabling works from April in advance of the disruptive migrations from September 2019.

Limehouse station

We have completed installation of two new escalators at Limehouse station. This station sees significant traffic as it also provides a link with the c2c service to and from Fenchurch Street. Our new escalators will improve station access and service interchange, and provide additional vertical capacity to support future growth.

Bus Safety Standard

Testing is under way on the potential components of the Bus Safety Standard, including emergency automatic braking and measures to make bus interiors more forgiving if passengers slip or fall. The outcome is a safety specification, incorporated into contracts from January 2019, to ensure new buses entering the fleet are compliant. Initial road trials for autonomous emergency braking were held in March and we are engaging with external stakeholders on the development of the remaining safety measures. We are planning a peer review of the safety measures, with vehicle industry experts chosen from an international pool.

The six bus operators who were allocated funding from the TfL Operator Safety Innovation Fund have all begun working on their safety trials, with the results expected in autumn. The trials include fatigue detection devices and new driver safety training.

We are working with operators to understand and address driver fatigue and are commissioning independent research into this issue.

Hydrogen Buses

To help reach the Mayoral target for all buses to be zero emission by 2037 and meet the Mayor's air quality objectives, we are procuring 20 hydrogen fuel cell buses and building a hydrogen refuelling station. The first hydrogen fuel cell buses are planned to arrive in 2020, with the station due to be operational by March 2020.

Assurance

Project Assurance completed an integrated assurance review on the Public Transport programme submission to the Programmes and Investment Committee meeting in December 2018. A quarterly update was provided to the Committee on 6 March 2019 on the seven recommendations that were made and accepted, including two by the IIPAG. Five recommendations are closed and good progress is being made to close the remaining two. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

Other

Technology and data

Forecast completion year

2020/21

Spend to date (£m)

52

Spend authority (£m)


228

EFC (£m)

201

EFC movement post plan (£m)

27

2018/19 budget milestone RAG 

The Technology and data programme provides the core infrastructure, services and technologies that allow us to achieve our strategic priorities.

Payments

In November 2018, we reached an agreement, in principle, on the changes needed to support the delivery of weekly capping for Oyster customers. We are continuing to work with the Train Operating Companies and are aiming to conclude the agreement later this year to enable us to launch weekly capping on rail services. As the agreement will involve changes to the provision of Oyster and contactless data to the Train Operating Companies, we are currently working to ensure that this is done in a manner which is fully compliant with the General Data Protection Regulation.

Evergreen programme

Over 5,500 new thin client devices have been successfully deployed to the TfL estate, while the remaining 2,000 (of the 7,500 purchased) continue to be deployed and we expect completion by summer 2019.

We have successfully deployed over 500 laptops with Microsoft Windows 10 and Office software to early adopters within Technology and data and Smart Working pilot areas.

In March 2019, the Programmes and Investment Committee approved the funding request. Authority and EFC shown are for financial years 2018/19 to 2020/21. EFC is net of the Data Centre Consolidation Investment Fund Credit which is included in the spend authority amount.



Weekly capping for Oyster customers on rail services is due to launch later this year

A business engagement network has been established to guide and assist the formal roll out of Windows 10/Office 365, which will commence at the end of May 2019 with further deployments scheduled for summer through to winter 2019.

User acceptance testing of business applications migrating to Windows 10 continues. Critical applications were prioritised, with others scheduled to support the formal roll-out phases.

Content and collaboration

The SharePoint Legacy Consolidation project is now in the implementation phase, and the migration of all SharePoint 2007 sites to SharePoint Online has been completed. The next stage is under way with the target of migrating all SharePoint 2010 sites.

The Livelink Upgrade project has also started implementation, and the new server environment proof of concept has been completed.

Operating and monitoring systems

The Surface Radio Replacement project completed its switch over to the new digital system within the last financial year. Over 9,200 buses and ten base stations were installed with the new digital radio hardware. This was achieved in just one year and one week after contract signature and without any significant downtime between the old and new services.

The Future Bus Systems project is delivering the functional specification for the design of the solution to replace our obsolete bus scheduling tools: BusNet, Caesar and SSTT.

Hosting – data centre rationalisation and cloud migration

We have nearly completed the handing back of two thirds of our primary data centre, where we host our applications and data, with a target completion date of summer 2019. This will generate £4.6m per annum in operational cost savings.

We continue to develop a hybrid hosting operating model, in which we have extended our data centre core capabilities into the public cloud, through AWS and Azure. We are expanding these capabilities to deliver stronger governance, operational controls and cost transparency to yield additional efficiencies.

Cyber security

We have used a number of inputs to inform and develop our cyber security strategy, including an audit conducted by external experts, a penetration testing exercise, partner engagements and the business pipeline of technology initiatives approved as part of our Business Plan.

Ongoing assessments of systems in scope of the Networks and Information Systems regulation are being concluded and compiled in preparation for sharing with the Department for Transport as our competent authority.

Data and analytics

Continuing work on the Digital Marketing Cloud, we have supported the business to remove contractual relationships with the third-party provider, making savings of circa £90k per annum for data hosting. In addition, by bringing the Cycle Hire scheme automation in to the platform we have saved a further £70k per annum.

We are using Faster Universal Load to deliver Oyster refunds, which allows us to issue service disruption refunds to Oyster customers in a much more effective manner. These refunds are now sent to validators at all stations, as well as buses and trams, in a timely manner, making it easier for customers to receive refunds and helping us meet our commitment to accessibility.

We are continuing to provide analytic services that underpin London Underground's visualisation programme. We are working with the performance analysis and improvement programme and have created various reports and system changes in the past quarter.

Two key deliveries were:

- NACHs 4G has been refreshed to bring more up to date data, driving a more accurate calculation for lost customer hours, which will help to improve strategic decision making
- We have brought category one safety information from SAFE into TfL which will provide greater feedback on service performance. It incorporates richer qualitative and quantitative datasets and this information is available via targeted reports. It also allows the business to identify root causes to performance issues

Networks

The Access and Wide Area Network (WAN) transformation programme has successfully completed pilot transformations at 11 sites and is now commencing the rapid roll out of the new WAN with an initial focus on rail sites (London Trams, London Overground, TfL Rail and Network Rail stations) with Oyster card terminals.

The delivery of the London Underground Connect radio system upgrade has started. The required equipment has been installed at three of the five core sites (King's Cross St Pancras, Shepherd's Bush and West Kensington) and works at the remaining two core sites are progressing. Preparations for the operational exit of the Connect PFI and transition to the successor arrangements with Thales are on schedule to complete by November 2019.

We continue to deliver infrastructure to support the Home Office's nationwide Emergency Service Network critical communications system. Across our 422km of tunnels, we have installed 280km of fibre optic cable and placed 321km of leaky feeder in a temporary position, 75km of which has been fixed into final position. Cabling works at the first 25 stations are largely complete and design work has started on the next 14 stations. We are finalising a new grant agreement with the Home Office for funding £24m of works through to the end of 2019/20, to enable us to largely complete all tunnel works and a further 25 per cent of the required stations cabling work. We have held further meetings with the Home Office about aligning the Emergency Services Network project with our telecoms commercialisation project with the aim of achieving delivery and cost synergies, and we expect to formalise this decision in the next month. We have included key Emergency Services Network requirements in the current telecoms commercialisation procurement process.

Following the recent funding approval by the Programmes and Investment Committee for a pilot of public cellular services network (PCN) and further PCN enabling works we are working with Capita and their key supplier, Nokia, to develop a proposal for the pilot. All four mobile network operators have confirmed their interest in participating in the pilot and we have so far met with Vodafone, O2 and EE to confirm their requirements if doing so. We aim to have the pilot operational by early 2020. In parallel, we aim to install a second leaky feeder cable on two Underground lines and complete station cabling works on a further 15 stations, including those on the Elizabeth line, to minimise the time between the telecoms commercialisation project awarding a concession and PCN services being available on these lines.

Technical refresh and technical-service operation

We have published a contract notice to invite bidders to supply a service desk, deskside support, and hardware repair and build services. These services are currently supplied through multiple providers, and this procurement process will bring these services under a single contract and supplier.

Our mission critical systems have been identified, prioritised for restoration and assessed in terms of resiliency. Solutions to address required improvements in resiliency across these systems are being finalised with implementation commencing in Quarter 2 2019/20.

An analysis of IT service management tools in the marketplace has been conducted and BMC Remedy has been chosen as our next toolset. A project to deliver this new and improved toolset is in progress with delivery expected in Quarter 4 2019/20.

We have completed a scoping and planning exercise to transition some third-party managed services to ourselves. The associated transition activities started in December 2018 and are due to complete in Quarter 3 2019/20. This transition together, with migration of infrastructure hardware by Quarter 2 2020/21, will result in approximately £1.2m reduction in annual operating costs.

Enterprise resource planning

In December 2018, we successfully concluded the migration of 1,500 staff from the Oracle HR and finance system, used by the former Tubelines organisation, to our expansive SAP system. This has removed duplication, and resulted in a common set of HR and payroll processes for our people. By Quarter 4 2019/20 we will conclude the Oracle decommissioning project by integrating the procurement and asset inventory functions into our SAP system.

In February 2019, we consolidated hundreds of manual internal periodic reports into one systemised financial management performance pack. In Quarter 3 2019/20 we will implement a new planning and consolidation system which will reduce manual activity and increase financial efficiency.

We have also made a major step in our enterprise resource planning (ERP) technology transformation by selecting the public Cloud to host our SAP ERP system and wave 1 of the migration begins in Quarter 2 2019/20. This is a significant element to enable our ERP upgrade strategy over the next five years.

Contact centre operation

The Oyster photocard concessions contract was awarded to Novacroft at the end of 2017, with transition taking place since then. Service commencement for the new contract took place on 1 January 2019. Ahead of this, functionality was delivered to allow Oyster photocard customers making online purchases to activate their product at any station within 30 mins, providing parity with adult Oyster customers.

Assurance

Project Assurance completed an integrated assurance review on the Technology and Data programme submission to the Programmes and Investment Committee meeting on 6 March 2019. Seven recommendations were made and accepted, including five by the IIPAG. Good progress is being made to close the recommendations. Project Assurance tracks progress against the recommendations made, including by the IIPAG, as part of its continuous assurance.

The Growth Fund

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2024/25	0.4	144	144	0

2018/19 budget milestone RAG 

The programme allocates funding to support transport schemes that help to unlock housing and commercial developments and support regeneration opportunities in some of London’s key growth areas.

Existing Growth Fund schemes

The Growth Fund contributes to 15 existing schemes that will support more than 55,000 new homes and 30,000 new jobs. Recently completed schemes include the transformation of the northern roundabout at Elephant and Castle.

Significant progress has been made in upgrading and developing stations such as Woolwich (Elizabeth line), Tottenham Hale, White Hart Lane and West Ham, which all support new housing developments. Our investment in the transport infrastructure has been supported by financial contributions from developers and other sources, including the GLA.

Sutton Link

A detailed option selection process has been undertaken, including a public consultation on a short list of options. A provisional recommended option has been identified and further work is now being progressed to develop the business case and funding package. Subject to confirming a full funding package, we plan to submit a Transport and Works Act Order application by late 2020.

Committed schemes

We made recommendations to the Programme and Investment Committee to provide contributions to support three schemes that met our agreed criteria.

These are:

- A new southern entrance at Ilford station to address capacity issues resulting from growth in the area, and to benefit bus passengers arriving at the station
- An upgrade at Colindale station in the first phase of a development programme to bring 10,000 new homes to the Colindale area
- An upgrade at Walthamstow Central station, with improved entrances and step-free access, to provide additional capacity to support new homes and jobs in Walthamstow town centre

We are working with the GLA to select the next set of projects to receive Growth Fund support and to seek funding for certain schemes through the Government's Housing Infrastructure Fund and Business Rates Retention Pilot scheme.

Assurance

Project Assurance completed an integrated assurance review on the Growth Fund submission to the Programmes and Investment Committee meeting in July 2018. A quarterly update was provided to the Committee on 6 March 2019 on the 11 recommendations that were made and accepted, including four by the IIPAG. All recommendations are now closed.

Elizabeth line



On-network stations improvement programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2019	70	94	94	0

2018/19 budget 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.

The step-free access works on the Great Eastern stations (Manor Park and Seven Kings) were substantially completed with all lifts and footbridges brought into use in February and Maryland in March 2019, making the stations accessible to customers for the first time.

On the Great Western section lift schemes at Hanwell, Iver, Langley and Taplow, construction is progressing well with groundworks largely completed and steelwork installation commenced at Langley and Taplow (lift shafts and bridge trestles). The remaining steelwork will be installed in the summer and all lifts and footbridges are scheduled to be in use by December 2019.

MTR Crossrail is continuing its station refurbishment programme. Work started in January 2019 on platform refurbishment activities, such as painting and decorating, at Brentwood, Harold Wood, Gidea Park and Romford. Refurbishment of the western surface stations not being rebuilt by Crossrail has also progressed with schemes for West Drayton and Hanwell having tenders evaluated. After the quarter close, work started as planned on West Drayton in May. At the same time, we received the listed building consent for Hanwell and works are now expected to commence in the summer.



Step-free access works on the Great Eastern stations have been substantially completed

Rolling stock

Forecast completion year

2019

Spend to date (£m)

959

Spend authority (£m)

1,149

EFC (£m)

983

EFC movement post plan (£m)

52

2018/19 budget milestone RAG



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

Since December 2018, test running has been carried out with nine-car trains fitted with integrated on-train signalling equipment. This has taken place on the Leicestershire test track and Great Western main line in readiness for replacing the seven-car trains currently in operation on the Paddington to Hayes & Harlington service from late June. This forms part of a reliability growth programme to prepare the nine-car fleet for extended services to Reading from December 2019, and central section trial running and trial operations in 2020.

Testing of the Class 345 units fitted with the European Train Control System, needed for operation to Heathrow Airport, has continued in the last quarter with more type-test being completed with higher maturity software.

Class 345 trains continue to be used for dynamic testing of the central tunnel section of the Elizabeth line, including over the signalling system transitions to Network Rail at Westbourne Park in the west and Stratford in the east, and including the first multi-train testing with two trains operating in the same test zone.

The EFC has reduced this quarter, mainly because of the deferral of rolling stock production to post the sale and lease back of the rolling stock fleet. Post the sale, rolling stock production will be funded directly by the lessor.

Crossrail

Crossrail

Forecast completion year

TBA

Spend to date (£m)

Spend authority (£bn)

17.6

EFC (£m)

EFC movement post plan (£m)

2018/19 budget milestone RAG 

The Crossrail project will create a new railway from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east. Crossrail Limited is managing construction, and when our services open through central London, it will be known as the Elizabeth line.

Crossrail Limited is focused on developing a detailed plan for an opening date, establishing a regime of project and cost control supported by a new visual management process. The result will be better reporting, a clearer understanding of issues, and quicker resolution with greater accountability at all levels.

Dynamic testing started in January 2019 continues, which involves trains running at service speed through both tunnels. A number of tests were carried out on the on-board train software and signalling systems.

Further work has been undertaken to gain clarity on completion dates on stations, shafts and portals which are critical to readiness for trial operations and passenger services.

We continue to make progress with the testing for stage two, phase two where four trains per hour will be running between Heathrow and Paddington.

In April, Crossrail Limited announced it had identified a six-month delivery window with a midpoint at the end of 2020.

The central section of the Elizabeth line will open between Paddington and Abbey Wood, and will link the West End, the City of London, Canary Wharf and southeast London with initially 12 trains per hour during peak times.

It is expected that all stations on the route will open except for Bond Street which is delayed because of design and delivery challenges. Crossrail Limited is working closely with Costain Skanska Joint Venture to ensure the station is ready to open at the earliest opportunity.

Once the central section opens, full services across the Elizabeth line from Reading and Heathrow in the west to Abbey Wood and Shenfield in the east, will commence as soon as possible.

* This information is withheld for reasons of commercial sensitivity

Appendix

2018/19 Budget milestone performance

Our 2018/19 Budget 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
 1-89 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 ■			
Train services on Hammersmith & City line use new signalling system between Hammersmith and Latimer Road	21-Oct-18	17-Mar-18	Complete ■
Train services on Hammersmith & City line use new signalling system between Ladbroke Grove and Paddington	18-Nov-18	19-May-18	Complete ■
Q2: 28 days late ■ Q3: 146 days late ■ Q4: 147 days late ■ Q2: 28 days late ■ Q3: 230 days late ■ Q4: 182 days late ■			
Due to signalling software readiness issues, the commissioning between Hammersmith and Latimer Road was re-forecast for spring 2019 and, as a result, the commissioning between Ladbroke Grove and Paddington has been delayed until summer 2019. Through revenue gapping, the rest of the migration areas received new forecast dates. The commissioning of Hammersmith to Latimer Road was achieved on 17 March 2019. The uplift remains on target to begin in 2021 and complete in 2023.			
Deep Tube Upgrade programme ■			
Preferred bidder for new Piccadilly line rolling stock contract determined	12-Jul-18	15-Jun-18	Complete ■
Tenders returned for signalling and train control contract	15-Mar-19	01-Apr-19	■
The signalling and train control contract procurement has been put on hold to accommodate Business Planning options. The Programme now awaits dispensation for the milestone so that it can be moved.			

Milestone description	Plan date	Actual/ forecast date	Status
Network extensions			
Northern Line Extension ■			
Nine Elms station civil works complete	26-Sep-18	25-Sep-18	Complete ■
Kennington station cross passage civil works complete	17-Sep-18	16-Sep-18	Complete ■
Silvertown Tunnel ■			
Preferred bidder selection dependent on national government support	28-Jan-19	22-May-19	■
<p>Q2: 93 days late ■</p> <p>Q3: 114 days late ■</p> <p>Q4: 112 days late ■</p> <p>The main reason for the delay was due to the Development Consent Order being postponed by the Secretary of State for six months. The consequential impact of this delay prevented private land agreements from being concluded, resulting in the need for additional time to gain access to undertake the ground investigations. However, the delay has allowed the GI report to be more informative, which provides the bidders with greater certainty when assessing risk levels as part of the bid submission. The bidders issued their final technical submission at the end of January 2019, and the tender evaluation is now complete. This delay directly impacted the selection of preferred bidder status, which moved the current forecast date from November 2018 to May 2019.</p>			
Barking Riverside Extension ■			
Early works contract – completion of all early works	27-Jul-18	27-Jul-18	Complete ■
Main works contract – supplier evaluation and award recommendation complete	18-Jul-18	24-Dec-19	■
<p>Q2: 197 days late ■</p> <p>Q3: 159 days late ■</p> <p>Q4: 154 days late ■</p> <p>Tender returns for the Barking Riverside extension main works contract were received in July 2018, and were higher than the project authority. To achieve greater value a series of Value Engineering (VE) exercises were undertaken with both internal and external stakeholders. The VE outputs were incorporated into a Best and Final Offer which, after further evaluation, allowed the contract to be awarded in December 2018. Although the contract award was delayed by 21 weeks, we successfully mitigated this delay by changing the procurement strategy to procure the critical overhead line electrification (OLE) switch works as a separate package. These works were successfully completed during a Network Rail Christmas possession. Despite the contract award delay the overall project completion date has not been impacted and remains December 2021. Also, by delaying the contract award, the project has achieved greater value, improved contractual documentation and mitigated the critical OLE switch works.</p>			

Milestone description	Plan date	Actual/ forecast date	Status
Major stations ■			
Bank station: preparatory power works complete to allow the start of tunnelling for new escalators	03-Oct-18	15-Aug-18	Complete ■
All Victoria station passenger facilities available for use	03-Dec-18	19-Oct-18	Complete ■
Bakerloo line link passage ready for Crossrail trial running	30-Nov-18	30-Nov-18	Complete ■
London Underground			
Stations renewals and enhancements ■			
Improvement works complete at London Underground stations that interface with the Elizabeth line	09-Dec-18	09-Dec-18	Complete ■
Finsbury Park is a step-free station	20-Mar-19	31-Jan-18	Complete ■
Accessibility ■			
Buckhurst Hill is a step-free station	09-May-18	04-May-18	Complete ■
Newbury Park is a step-free station	26-Oct-18	01-Nov-18	Complete ■
South Woodford is a step-free station	15-Mar-19	15-Mar-19	Complete ■
Track renewals ■			
Install 7.5km of new track across the Underground network	31-Mar-19	16-Feb-19	Complete ■
Rolling stock renewals ■			
75 per cent of Bakerloo line fleet refurbishment works complete	31-Dec-18	03-Oct-18	Complete ■
50 per cent of Jubilee line fleet mid-life refurbishment works complete	31-Dec-18	06-Oct-18	Complete ■
23 lift and escalator replacement and refurbishments complete	31-Mar-19	21-Dec-18	Complete ■
Surface			
Healthy Streets ■			
Highbury Corner gyratory – start construction	31-Aug-18	28-Jun-18	Complete ■
Highbury Corner bridge – construction complete	31-Aug-18	17-Aug-18	Complete ■

Milestone description	Plan date	Actual/ forecast date	Status
Cycle Superhighway North South – Phase 2 from Stonecutter Junction to Judd Street complete. This completes the CS6 route, running from Elephant and Castle to Judd Street	23-Dec-18	30-Oct-18	Complete ■
Old Street roundabout – start advance works on site	22-Feb-19	19-Nov-18	Complete ■
Mini-Hollands – 4.5km of segregated or semi-segregated cycle route across Kingston, Waltham Forest and Enfield complete	31-Mar-19	31-Mar-19	Complete ■
Cycle Quietways Borough – construction of 25km of the total 250km completed in 2018/19	31-Mar-19	31-Mar-19	Complete ■
Dial-a-ride fleet renewal – Delivery of first vehicle	31-Dec-18	01-Dec-18	Complete ■
Local schemes – 75% of agreed regional improvement schemes complete	13-Jun-18	31-Mar-19	Complete ■
Liveable Neighbourhoods – feasibility stage complete for three of the seven boroughs that received feasibility funding in 2017/18	31-Mar-19	12-Mar-19	Complete ■
Air quality and environment □			
Bus retrofit – Four Low Emission Bus Zone routes complete: <ul style="list-style-type: none"> • A2 Camberwell – New Cross • A3 Wandsworth – St John’s Hill • A5 Edgware Road • Edmonton – Seven Sisters 	31-Mar-19	03-Mar-19	Complete ■
Growth Fund □			
Sutton Tram extension – consultation launch	30-Nov-18	30-Nov-18	Complete ■
Technology and data ■			
Heathrow extension – extension of Oyster and contactless acceptance to Heathrow	27-Jul-18	27-Jul-18	Complete ■
Future Ticketing Programme 4 – delivery of weekly capping for Oyster customers	21-Dec-18	13-Dec-18	Complete ■
Ticket vending machine – new ticket vending machines to support Elizabeth line central service installed and ready for operation	31-Dec-18	31-Dec-18	Complete ■

Milestone description	Plan date	Actual/ forecast date	Status
Commercial development ■			
Announce Elizabeth line partners	31-Oct-18	28-Sep-18	■
Deliver a signed contract for the commercialisation of the telecommunications assets, including the delivery of public cellular services on the Underground	14-Dec-18	15-Apr-18	■
<p>Q2: 123 days late ■</p> <p>Q3: 123 days late ■</p> <p>Q4: 123 days late ■</p> <p>The Home Office has reviewed national Emergency Services Network communications programme, and announced a revised delivery approach for the programme. Following a joint review of delivery options between the Emergency Services Network and the Telecommunications Commercialisation Project (TCP), it has been agreed in principle with the Home Office to align the projects.</p> <p>This has the potential to deliver cost savings and delivery synergies, and we are aiming to release the ITT for the combined Emergency Services Network and TCP scope in summer 2019.</p>			
Submit planning application – Kidbrooke	04-Feb-19	27-Nov-18	Complete ■
Submit planning application – Blackhorse Road	29-Mar-19	17-Aug-18	Complete ■
Elizabeth line integration			
Rolling stock ■			
Elizabeth line passenger services start on central section between Paddington and Abbey Wood	Dec-18	TBC	■

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Programmes and Investment Committee



Date: 17 July 2019

Item: Independent Investment Programme Advisory Group
Quarterly Report

This paper will be considered in public

1 Summary

1.1 The purpose of this paper is to present the Independent Investment Programme Advisory Group (IIPAG) Quarterly Report.

2 Recommendation

2.1 **The Committee is asked to note the Independent Investment Programme Advisory Group's Quarterly Report and the Management Response set out below.**

3 Background

3.1 Under its Terms of Reference (2017), 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 for the Programmes and Investment Committee and Audit and Assurance Committee.

3.2 This is the second full quarterly report of the current IIPAG and the first since IIPAG began implementing their approved workplan for 2019/20. The report focusses on the reviews they have participated in and provides details of the presentations they have received from TfL Officers

3.3 There are no new recommendations in the IIPAG Quarterly Report.

4 Management Response

Effectiveness of the First and Second Lines of Project Assurance

First Line Assurance

4.1 Members of IIPAG have held an introduction meeting with Head of Project Management Office to discuss the effectiveness of the first line of assurance and to agree interaction going forward.

IIPAG Recommendation Tracking

4.2 The process to track the recommendations made by IIPAG and Project Assurance has been strengthened and details of recommendation status (open,

overdue and unagreed) are now included in the Project Assurance update (item 9 on the agenda) rather than IIPAG's Quarterly Report.

5 IIPAG Review Implementation Update

- 5.1 The Committee has previously received a separate update on the progress being made to implement the recommendations made by TC Chew in his 2017 review of IIPAG.
- 5.2 The last outstanding action against those recommendations related to establishing a TfL-IIPAG Memorandum of Understanding (MoU). The IIPAG Quarterly Report advises that the MOU has now been agreed with IIPAG members and TfL officers. All recommendations from the TC Chew report are, therefore, now complete. Appendix 2 provides confirmation of all actions taken to close the recommendations.

List of appendices to this report:

Appendix 1 – IIPAG Quarterly Report (June 2019)
Appendix 2 – IIPAG Review Action Plan update

List of Background Papers:

None

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Independent Investment Programme Advisory Group – Quarterly Report (June 2019)

This paper will be considered in public

1 Summary

- 1.1 This is the second full quarterly report of the current IIPAG. It describes the work we have undertaken since our last report, and some strategic and systemic issues that we have identified for further review.
- 1.2 The parallel report from TfL Project Assurance describes management progress in closing actions on IIPAG recommendations.
- 1.3 IIPAG's work programme for 2019/20 was discussed and agreed at the PIC meeting in May.

2 Recommendations

- 2.1 There are no new recommendations on systemic or cross-cutting issues at this stage. We have identified a number of cross-cutting issues for consideration in our work programme for 2019/20 which we will report on in due course.

3 IIPAG work since last Quarterly Report

- 3.1 IIPAG has been involved in three sub-programme reviews and a total of four Project Assurance Reviews since its last report (14 March 2019). These are listed in Table 1 below:

Project Assurance Reviews
LU Stations Healthy Streets Silvertown Tunnel Sutton Link CS4 Emergency Services Network Connect

- 3.2 These reviews have identified a number of sub-programme or project specific recommendations, but also a number of cross-cutting issues (for example, the approach to risk and contingency and management information) which we will pick up in our cross-cutting work.

- 3.3 IIPAG has agreed a protocol with TfL, setting out ways of working and the relationship between IIPAG and TfL, as recommended by TC Chew. IIPAG members regularly attend the Executive Meetings which oversee the investment programme (LUX, Surface Transport, and Investment Meeting), to develop our understanding of the programme and thematic issues, and our ability to offer advice. In addition IIPAG has received briefings on the development of the PMO function, the transformation programme and the plans for commercial transformation. We have also met with the Head of Internal Audit to discuss the internal audit workplan for 2019/20.
- 3.4 From these and the learnings from project and sub-programme reviews we have identified some cross-cutting issues which we will consider further in the coming year (in addition to those flagged in our last report). These are:
- How well TfL forecasts and controls the costs of its investment projects, across the business
 - How projects are initiated, in particular how the objectives, requirements, business case and option selection are established
 - The performance of the PMO, and the quality of the processes and information it provides.

List of appendices to this report:

None

List of Background Papers:

None

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Appendix 2 – IIPAG Review Action Plan update.

Action	Owner	Due Date	Current Status
Recruitment Plan. A recruitment plan will be prepared that sets out the next steps for the recruitment of the Chair, members and Pool of Experts.	Head of Project Assurance	Oct 2017	Complete. The recruitment of the IIPAG Chair and members is complete.
Revise Mayoral Direction. TfL will draft revised wording for a Mayoral Direction to reflect review recommendations.	General Counsel	Nov 2017	Complete. The revised Mayoral Direction for IIPAG was signed by the Mayor on 18 December 2017.
Appoint Relationship Sponsors. Relationship Sponsors, drawn from across the business will be appointed, initially to provide input to the IIPAG-TfL MoU. They will then provide an ongoing point of contact for IIPAG and support their area of the business in understanding the role of IIPAG.	Head of Project Assurance	Nov 2017	Complete. David Hughes (Director of Investment Delivery Programme), Shashi Verma (Director of Technology and Data) and Stuart Harvey (Major Projects Director) have agreed to be Relationship Sponsors.
Amend AAC and PIC Terms of Reference. Small changes to the AAC and PIC Terms of Reference are required to implement the IIPAG review recommendations	General Counsel	Nov 2017	Complete. The amendments were agreed by the TfL Board at its meeting on 9 November 2017.
Director of Risk and Assurance to work with IIPAG to agree how its work can be coordinated with the work of the wider Risk and Assurance Directorate.	Director of Risk and Assurance	Dec 2017	Complete. The IIPAG workplan sets out the ways in which IIPAG are coordinating their work with the Teams within the Risk and Assurance Directorate.
Revise Terms of Reference. IIPAG Terms of Reference to be revised to reflect review recommendations.	Head of Project Assurance	Jan 2018	Complete. The TfL Board approved a revised Terms of Reference for IIPAG on 30 January 2018.
Produce TfL-IIPAG Memorandum of Understanding (MoU). To include expected ways of working and communications,	General Counsel	Feb 2018	Complete. Following the appointment of the IIPAG Chair and members, a Memorandum of Understanding has been agreed between IIPAG and TfL Officers.

<p>timescales for written reports and responses, and clear escalation processes. The MoU will be drafted, drawing on the points raised in the review and input from IIPAG and the business. The MoU will be formally agreed by ExCo and IIPAG.</p>			
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Programmes and Investment Committee

Date: 17 July 2019

Item: TfL Project Assurance Update – Quarter 1 2019/20



This paper will be considered in public

1 Summary

- 1.1 This paper provides an update on the project assurance work undertaken in quarter 1 of 2019/20. A total of 18 reviews were undertaken, consisting of four sub-programme and 14 project assurance reviews.
- 1.2 These reviews gave rise to 68 recommendations being made, of which seven were considered to be critical issues. Critical issues should be addressed before proceeding to the next stage.
- 1.3 The key findings from the reviews undertaken in quarter 1 are:
 - (a) there is continued cost pressure on a number of projects;
 - (b) in some cases risk assessments are not as robust as would be expected given project maturity; and
 - (c) the sub-programme reviews have highlighted a need for improvement in portfolio management.
- 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**

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 the Independent Investment Programme Advisory Group (IIPAG).

4 Summary of Project Assurance Activity

- 4.1 There were four sub-programme reviews undertaken during the quarter. IIPAG members were involved in three of these reviews. In the same quarter 14 project assurance reviews were undertaken¹, with four of these involving IIPAG.
- 4.2 From the reviews undertaken a total of 68 recommendations were made by TfL Project Assurance, of which:
- (a) seven were critical issues agreed with the respective project teams; and
 - (b) 61 were general recommendations agreed with the respective project teams.
- 4.3 From the assurance reviews undertaken by IIPAG in the quarter, 10 general recommendations were made by IIPAG.
- 4.4 Appendix 1 provides a summary of the critical issues and the actions being taken to address these.
- 4.5 The following graphs show the number of open recommendations, and the number of these which are overdue.

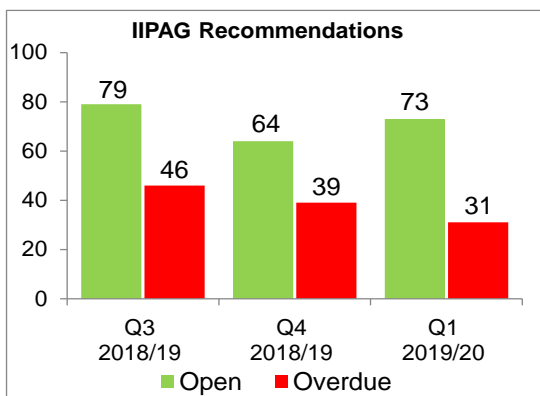


Figure 1: IIPAG Recommendations

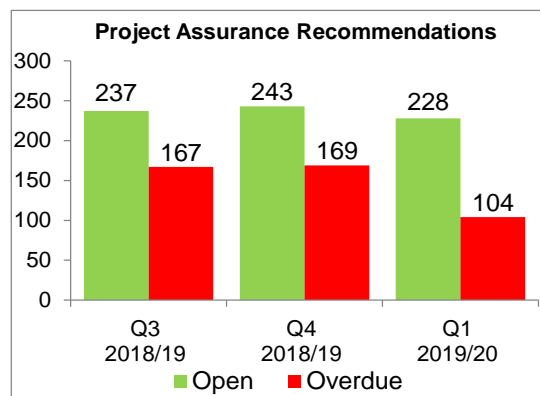


Figure 2: Project Assurance Recommendations

- 4.6 We continue to work with project teams to ensure that recommendations are acted upon and closed within an appropriate timescale once evidence has been provided. The management and closure of recommendations is a key focus of the Project Assurance team, and the number of open and overdue recommendations will form part of a team level KPI to ensure focus. We are also working with project teams to ensure future management responses provide timely and realistic dates for completing actions.

¹ This includes Sutton Link for which the review was completed at the end of March 2019, but was not reflected in the previous IIPAG assurance update to the Committee due to paper submission dates.

List of appendices to this paper:

Appendix 1 – Overview of Recommendations

List of Background Papers:

None

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Appendix 1: Overview of Recommendations

Critical issues agreed with the respective project teams

Project: Sutton Link		
Raised by	Critical Issue	Management Response
Project Assurance	The final stage of the option selection process must be revisited with Project Assurance, IIPAG and experts from around the business. Further assurance of the option selection process is required before submission to the Surface Transport Investment Board, Deputy Mayor or Mayor.	The final stage of the option selection process will be updated following further work on the modelling, new homes unlocked, strategic case and benchmarking against a low cost alternative. This will be reviewed with Project Assurance, IIPAG and experts from around the business prior to seeking endorsement for the preferred option.
Project Assurance	The funding strategy should be updated to present an accurate and informed view of the projects affordability, with a realistic estimate of funding available from local sources.	Further work on the funding strategy is being undertaken to provide a clearer picture of the funding sources and their likelihood of proceeding. This will include a more detailed estimate of funding available from local sources. The revised and more detailed funding strategy document will be prepared and submitted to Project Assurance and IIPAG for review.
Project Assurance	If the scheme is to be progressed a thorough and objective narrative to be produced demonstrating that factors beyond the economic appraisal support a conclusion that the scheme offers good value for money.	The Strategic Outline Business Case is being updated with an enhanced narrative and more evidence to help inform whether the scheme should be progressed further despite a relatively weak transport case. This will include a more robust estimate of the number of new homes unlocked by the scheme.
Project Assurance	A base cost 'affordable' option should be developed and used as a benchmark.	An 'affordable' option is being developed as a comparator against which the shortlisted options for the Sutton Link project can be assessed. We are also identifying potential cost savings for the shortlisted tram and Bus Rapid Transit options. Assessment of the lower cost option(s) will be included in the updated business case that will be submitted for review to Project Assurance and IIPAG.

Project: Safer Junctions		
Raised by	Critical Issue	Management Response
Project Assurance	The Business Case must be completed to demonstrate that the programme will deliver good value for money and is affordable. It must be reviewed by Project Assurance with an update to the Healthy Streets Programme Board.	Additional support has been secured to enable progression of the overarching programme business case. The assessment methodology has been agreed, and work is in train. Individual project business cases continue to be developed by Sponsors.
Project Assurance	The schemes are not managed as a programme. Programme level management processes must be established, including financial, change control, milestones, reporting, risk, benefits.	A programme level Pathway Product Management Plan (PPMP) has been created and a list of deliverables per gate issued to Sponsors and Project Managers to link to the PPMP.
Project Assurance	Programme level documentation must be developed in line with Pathway guidance.	The Project Management Unit (PMU) will facilitate a review of the Pathway Product Management Plan (PPMP) and apply professional judgement on the products required to manage this programme and the 19/20 projects. An integrated assurance plan will clearly set out the key approval milestones and approach to Gate management at both the programme and project level. Some general Pathway housekeeping is underway reviewing each product for completeness and relevance to programme/project, and linking signed products where available into the PPMP.

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Programmes and Investment Committee



Date: 17 July 2019

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 since the last meeting of 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. This paper also provides information on any new Mayoral Directions to TfL within the Committee's remit.
- 1.2 Since the last meeting of the Committee, on 15 May 2019, the following authority has been exercised:
 - (a) one matter within the Committee's remit was approved through Chair's Action in relation to the Rotherhithe to Canary Wharf Crossing;
 - (b) one matter delegated by the Board was approved through Chair's Action in relation to appointments to the Board of Crossrail Limited (CRL); and
 - (c) the Chief Finance Officer approved Procurement Authority in relation to a contract variation for Design Capture Services for the Crossrail 2 Development Phase and a contract award for the Surface Intelligent Transport System Common Operational View and Incident Management System.
- 1.3 There have been no new Mayoral Directions to TfL within the remit of the Committee.
- 1.4 A similar report is submitted to the Finance Committee in respect of any use of delegated authority or Mayoral Directions within that Committee's remit.

2 Recommendation

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

3 Use of Chair's Action since 15 May 2019

- 3.1 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.
- 3.2 There have been two uses of Chair's Action since the last meeting of the Committee.

Rotherhithe to Canary Wharf Crossing

- 3.3 On 21 June 2019, the Chair of the Committee, following consultation with available members, approved the recommendation that the project should return to Pathway Stage 2 (Feasibility) to further investigate strategic alternatives for the Rotherhithe to Canary Wharf Crossing and noted the proposed next steps and that revised authorities would be sought in due course.
- 3.4 The use of Chair's Action was considered appropriate as there were a number of scheduled activities on which an urgent decision was needed on whether to proceed and avoid unnecessary expenditure.
- 3.5 Further information is provided in the paper sent to Committee members, attached as Appendix 1 to this paper.

Crossrail Limited (CRL) appointments

- 3.6 On 27 March 2019, the Board delegated authority to the Committee to take decisions on matters reserved to the Board in relation to the Crossrail project, including the appointment of further non-executive directors.
- 3.7 On 27 June 2019, the Chair of the Committee, following consultation with available Members of the Board, approved the appointment of two additional independent, non-executive directors of CRL for a period of one year, renewable with the approval of TfL and the Department for Transport, as Sponsors. The public announcement of the appointments is expected shortly..
- 3.8 The use of Chair's Action was considered appropriate as a decision was needed on the appointment of the new non-executive directors as part of the implementation of the recommendations made by KPMG following its review of CRL's governance as soon as possible.

4 Programme and Project Authority Approvals since 15 May 2019

- 4.1 Programme and Project Authority is the authority to spend money, receive income, incur a financial liability or to redistribute funds to relevant third parties in respect of a programme, or any part of it, or any other project.
- 4.2 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.
- 4.3 The Commissioner (and in his absence, the Chief Finance Officer) has delegated authority to approve Programme and Project Authority on programmes and projects up to a value of £50m that contain less than £25m of unbudgeted expenditure.
- 4.4 The Chief Finance Officer has delegated authority to approve Programme and Project Authority for programmes and projects under £25m that contain less than £10m of unbudgeted expenditure. Approval of authority for projects of less than £5m that contain less than £2m of unbudgeted expenditure is delegated to Chief Officers and is not reported here.

- 4.5 Where the main contract has not yet been awarded, the Financial Authority and Estimated Final Cost may not be stated because they are commercially confidential.

Approvals by the Commissioner

- 4.6 Since the last meeting of the Committee, the Commissioner has not approved Programme and Project Authority for any projects.

Approvals by the Chief Finance Officer

- 4.7 Since the last meeting of the Committee, the Chief Finance Officer has not approved Programme and Project Authority for any projects.

5 Procurement Approvals since 15 May 2019

- 5.1 Procurement Authority is the authority to make a binding or contractual commitment with a supplier for the purchase of goods, services, land or works or to receive income arising from TfL Group activities in the areas of goods, services, land or works.
- 5.2 The Commissioner (and in his absence, the Chief Finance Officer) has delegated authority to approve budgeted Procurement Authority up to a value of £100m.
- 5.3 The Chief Finance Officer has delegated authority to approve budgeted Procurement Authority up to a value of £25m.

Approvals by the Commissioner

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

Approvals by the Chief Finance Officer

- 5.5 Since the last meeting of the Committee, the Chief Finance Officer has approved two Procurement Authority requests in respect of matters within the Committee's remit. Further details are provided in Appendix 2.

6 Mayoral Directions to TfL

- 6.1 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.
- 6.2 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.
- 6.3 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>.

- 6.4 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.
- 6.5 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.
- 6.6 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.
- 6.7 Mayoral Directions to TfL related to projects and programmes are reported to this Committee. 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 – Chair's Action request on Rotherhithe to Canary Wharf Crossing

Appendix 2 – Summary of Procurement Authorities approved by the Chief Finance Officer

List of Background Papers:

None

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Programmes and Investment Committee Chair's Action



Date Issued: 18 June 2019

Item: Rotherhithe to Canary Wharf Crossing

This paper will be published with the next agenda

1 Summary

- 1.1 The Rotherhithe to Canary Wharf Crossing is being developed to improve cross-river connectivity between key opportunity areas (Canada Water and Canary Wharf), encourage greater levels of active travel in east and south London and provide an alternative river crossing to the Jubilee Line. The Mayor's Transport Strategy states "New crossings for pedestrians and cyclists can help connect local communities and encourage healthier lifestyles....A new crossing for pedestrians and cyclists between Rotherhithe and Canary Wharf can help support growth and encourage more active travel."
- 1.2 In October 2017 the Programmes and Investment Committee noted the work undertaken to establish the need for a new river crossing in this location and endorsed a 'navigable bridge' as the provisional preferred strategic option. Since this time we have undertaken a substantial amount of work to develop the scheme further.
- 1.3 We have now reached a key stage in the scheme's development with a concept design having been developed and costed and an assessment of available third party funding has been undertaken. The case for the scheme and assessment of the bridge option against the strategic alternatives has therefore been re-examined.
- 1.4 With particular consideration for the revised Financial Case for the scheme, it is recommended that the project reverts to Pathway Stage 2 (Feasibility) to reassess strategic alternatives. A combination of increased capital costs, the financial impact from a subdued economy and a lack of certainty over TfL's long term capital funding, together with an absence of alternative funding sources indicates the bridge option is unlikely to be affordable in the short to medium term.
- 1.5 The use of Chair's Action is considered appropriate as there are a number of scheduled activities on which an urgent decision is needed on whether to proceed and avoid unnecessary expenditure.
- 1.6 The members of the Committee are asked to consider the proposal and provide Greg Clark, as Chair, with their views on or before 10am on 21 June 2019. The contents of this paper and the exercise of Chair's Action will be reported to the next meeting of the Committee.

2 Recommendation

2.1 The Chair of the Committee (in consultation with its members), is asked to:

- (a) approve the recommendation that the project should return to Pathway Stage 2 (Feasibility) to further investigate strategic alternatives for the Rotherhithe to Canary Wharf crossing; and**
- (b) note the proposed next steps and that revised authorities will be sought in due course.**

3 Scheme Development

3.1 The concept of a new pedestrian and cycle crossing between Rotherhithe and Canary Wharf has been promoted by stakeholders for a number of years and is provided for within the Mayor's Transport Strategy. Following the Mayor's strategic review of river crossings in 2016, we have been investigating the case for this scheme as a priority.

3.2 We established the need for a new crossing in this location and defined objectives for the scheme:

- (a) to connect the two opportunity areas of Canada Water and the Isle of Dogs;
- (b) to improve connectivity from the Rotherhithe peninsula, particularly the area beyond the walking catchment of Canada Water station;
- (c) to encourage more people to walk and cycle in the area;
- (d) to provide additional capacity and routes for cyclists as an alternative option to existing crossings in the area;
- (e) to produce a well-designed and convenient link which achieves value for money and is fundable; and
- (f) to provide an alternative link to the Jubilee line between Canada Water and Canary Wharf.

3.3 We then carried out a strategic options appraisal and concluded that a 'navigable bridge' was the provisional preferred option and should be examined in greater detail. On 10 August 2017, officers approved this Single Option Recommendation and the completion of Pathway Stage 2 (Concept Design). This decision and the planned next steps for the scheme were also endorsed by the Programmes and Investment Committee on 13 October 2017.

3.4 In November 2017, we launched a public consultation to seek views on the need for a new river crossing in this location, our options analysis and a number of other detailed matters. The results of the consultation showed significant support for a new river crossing in this location (93 per cent support overall), as well as our provisional preferred option of a bridge (85 per cent support overall). The consultation, in addition to ongoing stakeholder engagement, also provided valuable feedback which has helped us to further develop the scheme.

4 Concept Design stage

4.1 Following completion of Pathway Stage 2, and supported by feedback from the public consultation, we have subsequently undertaken substantial work to develop the scheme through Pathway Stage 3 (Concept Design).

- (a) A thorough options assessment has been undertaken to determine:
 - (i) the preferred bridge alignment – between Durand's Wharf park (in Rotherhithe) and Westferry Circus (in Canary Wharf); and
 - (ii) the preferred bridge type – a vertical lifting bridge.
- (b) A concept design has been completed for a vertical lifting bridge between Durand's Wharf park and Westferry Circus. This has allowed us to determine a number of key parameters, such as the vertical alignment of the bridge (optimum height and gradients), access arrangements, and structural form.
- (c) An operational concept has been developed which sets out how the new bridge would be operated and maintained. This establishes how crowds would be managed during bridge lifts, how we would communicate with river and bridge users, as well as how the bridge could be maintained to minimise disruption.
- (d) Construction proposals have been developed to further demonstrate the feasibility of implementing the scheme, including the identification of worksite locations, logistics arrangements and construction methodologies.

4.2 This work has been developed in close consultation with stakeholders and the key principles are generally agreed, subject to detailed assessment work. For example, the height and bridge pier locations have been agreed with the Port of London Authority subject to completing the formal navigational risk assessment process which is underway.

4.3 Overall the scheme has been developed to a point where a final public consultation could be undertaken prior to an application under the Transport and Works Act 1992 for the powers to build and operate the scheme.

5 Case for the scheme

5.1 Having completed a substantial portion of the Concept Design stage and prior to commencing any further public consultation and assessment work, we have reviewed the case for the scheme to inform a decision on whether to proceed:

- (a) **Strategic Case:** the work carried out to date continues to demonstrate a clear need for a new river crossing for pedestrians and cyclists in this location, and this is robustly supported by relevant policy.
- (b) **Economic Case:** the scheme would provide substantial support to strategic objectives and enables significant increases in active travel in the area. It also has the potential to deliver wider economic benefits in the longer term by improving connectivity in Rotherhithe – a poorly connected and low density

inner London area. However, the quantified transport benefits of the bridge option are only marginally greater than the costs over the appraisal period, although when broader economic impacts are considered, together with the wider package of investment in walking and cycling across east and south London, the analysis suggests the scheme has the potential to deliver high value for money. The earlier strategic analysis of options also demonstrated the alternative ferry option had the potential to offer high value for money and was capable of being delivered more quickly and at a much lower capital cost.

- (c) **Financial Case:** substantial work to develop a funding package for the scheme has identified that TfL would need to provide the vast majority of funding for the scheme, as no other funding or financing options appear to be feasible in terms of suitability, timescales or quantum. The capital costs of the scheme now has a mid-point estimate of £463m, with the upper end of the range being over £600m (including risk and inflation). In TfL's 2018 Business Plan circa £350m is identified, however, there are continuing substantial pressures on TfL's finances and it is therefore unlikely that the required level of funding can be found (from TfL or third parties) to deliver the bridge option in the short to medium term.
- (d) **Commercial Case:** the scheme is commercially feasible with a number of specialist suppliers inputting to the development work. An outline procurement strategy has been developed setting out a proposed model for a single 'Design and Build' contractor to take forward the main works. Alternative private finance models have been explored, noting the up-front funding constraints, but are not currently believed to be commercially or financially viable.
- (e) **Management Case:** a suitable project team has been established, supported by external consultants, and is well positioned to develop the scheme through the next stages. It must be noted however that this represents a complex and somewhat unprecedented piece of infrastructure.

5.2 On reviewing the case for the scheme, it is clear that valuable work has been carried out to develop a concept design and clear plans are in place which demonstrate its technical, commercial and management feasibility. The scheme has the potential to provide longer term benefits in support of key strategic objectives. However, the current financial constraints and lack of alternative funding sources suggest the bridge option is unaffordable in the short to medium term. It is therefore recommended the project revert to feasibility stage to explore strategic alternatives, in particular the ferry option, which may be more affordable as a short to medium term solution.

5.3 This position accords with the recommendation from the most recent assurance review of the Healthy Streets programme that was conducted in May 2019 and recommended the affordability of the scheme be confirmed before a further public consultation is undertaken.

6 Next Steps

6.1 Subject to approval from the Chair of the Committee (in consultation with its members) of the recommendation to return to Pathway Stage 2, the proposed next steps include:

- (a) taking the current activities to a logical end-off point to ensure the valuable work done to date can be used in future, whilst also curtailing certain works which would otherwise incur significant costs in the short term, such as ground investigations;
- (b) recommencing Pathway Stage 2 activities by further exploring strategic alternatives. While it appears the bridge option may not now be affordable in the short to medium term, the ferry option remains potentially viable. A ferry option represents a substantially cheaper proposition, although work to date suggests it is likely to deliver less overall benefit. This position will need to be confirmed through further assessment work and key questions to be addressed regarding the ferry option include:
 - (i) **Economic case:** the extent to which a ferry option can deliver against strategic objectives in terms of walking and cycling demand. The impact on demand from factors such as dismounting and in-vehicle time. The ability of a ferry to deliver wider economic benefits;
 - (ii) **Commercial case:** the most appropriate commercial model for a new ferry service and the associated infrastructure. How third parties, such as infrastructure providers or commercial operators, can be brought into the process;
 - (iii) **Financial case:** the need for TfL to provide capital funding for the required infrastructure up-front or whether alternative funding and financing options are feasible; and
 - (iv) **Management case:** whether TfL should directly promote an enhanced ferry service or encourage its implementation through the existing market;
- (c) developing a comprehensive stakeholder management plan around a public announcement of this decision. Such a decision will create significant interest from a number of stakeholders; and
- (d) developing revised project requirements, costs and schedule to seek revised authorities in due course.

List of appendices to this report:

None

List of Background Papers:

None

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Appendix 2: Summary of Procurement Authority Approvals

Approval Date	Contract / Project Name	Type	Total Value (£k)	Approval
31/05/2019	Design Capture Services for Crossrail 2 Development Phase	Contract variation	2,571	Chief Finance Officer
21/06/2019	Surface Intelligent Transport System (SITS) - Common Operational View & Incident Management System.	Contract award	6,566	Chief Finance Officer

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Programmes and Investment Committee



Date: 17 July 2019

Title: Crossrail 2

This paper will be considered in public

1 Summary

- 1.1 The current phase of Crossrail 2 involves outline design and delivery planning, to facilitate agreement between the funders of an approach to take the scheme forward.
- 1.2 Further to the paper approved by the Committee on 6 March 2019, the Crossrail 2 Integrated Project Team (IPT) has submitted a fifth version of the Strategic Outline Business Case (SOBC) to the Department for Transport (DfT) – previous versions were submitted in 2014, 2015, March 2017 and October 2017.
- 1.3 The updated SOBC reflects the recent work to improve the scheme's affordability. Assessment of the SOBC will be a key part in the Government's consideration of the project at the 2019 Spending Review.
- 1.4 A supplemental 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 submission of the 2019 Strategic Outline Business Case and exempt supplementary information on Part 2 of the agenda.**

3 Anticipated Decision Timescales

- 3.1 The IPT has revised the SOBC to support the Government's decision-making, taking account of the 2018 Independent Affordability Review's conclusions, changes in the economy, recent London travel patterns and lessons learnt from the original Crossrail project.
- 3.2 The SOBC has been submitted to the DfT, and is undergoing review by the DfT's Centres of Excellence. Once these reviews are complete, it will be held in readiness for the planned Government Spending Review. Further details on the SOBC are included in the paper on Part 2 of the agenda.

3.3 In late 2018, the Chancellor of the Exchequer indicated that the outcome of the Spending Review could be conveyed as part of the Budget Statement in autumn 2019. Recent political uncertainty means that the timing of the Spending Review is unclear.

4 Assurance

4.1 It is intended that the Infrastructure & Projects Authority will conduct a second Project Assessment Review (PAR) in September 2019. PARs are a Government assurance mechanism employed at key decision-points. The first Crossrail 2 PAR was held in March 2017, following submission of the second SOBC. The findings of the 2019 PAR will be shared with the Committee.

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: 17 July 2019

Item: Silvertown Tunnel Update

This paper will be considered in public

1 Summary

- 1.1 Following the approvals granted at its meeting on 15 May 2019, this paper provides the Committee with an update on the status of the procurement of the Silvertown Tunnel scheme.
- 1.2 A paper containing exempt information is included on Part 2 of the agenda. The information is exempt by virtue of paragraphs 3 and 5 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL and legally privileged advice. 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 supplemental paper included on Part 2 of the agenda.**

3 Preferred Bidder Nomination

- 3.1 On 30 May 2019 we selected the Riverlinx consortium as the preferred bidder to design, build, finance and maintain the Silvertown Tunnel. The consortium includes BAM PPP PGGM, Cintra, Macquarie Capital and SK Engineering & Construction (SK E&C).
- 3.2 The consortium is now confirming financial arrangements with lenders and mobilising its supply chain. The Project Agreement is expected to be completed by end of August 2019, subject to finalising the financial arrangements.

4 Preferred Bidder Submission

- 4.1 Technical and financial submission details from Riverlinx are described in the paper on Part 2 of the agenda.

5 Scheme Activities outside of the Preferred Bidder scope

- 5.1 TfL is arranging access to land and assisting the consortium in stakeholder consultation as they move into the detailed design and construction phases following contract award.

5.2 A number of other activities will be progressed by TfL as these are outside the preferred bidder scope. These include planning of new bus services, updating the traffic model and agreeing/installing the new user charging equipment at the Blackwall and Silvertown tunnels. We have created a resourced delivery programme to run in parallel with the preferred bidder works for the activities we are responsible for.

6 Next steps

6.1 We are working with Riverlinx to finalise the Project Agreement and we expect this to be executed in August 2019.

List of appendices to this report:

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

List of Background papers:

Paper to the Committee on 15 May 2019

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Programmes and Investment Committee

Date: 17 July 2019

Item: Healthy Streets Programme 2019/20 and 2020/21

This paper will be considered in public

1 Summary

- 1.1 This paper represents the third annual submission of the Healthy Streets Programme (the Programme) to the Committee, setting out the request for Programme and Project Authority to cover 2019/20 and 2020/21.
- 1.2 The focus of this year's paper is to:
 - (a) provide an update of the Programme's success in delivering projects in 2018/19;
 - (b) demonstrate the integral importance of the Healthy Streets Approach in achieving Mayoral outcomes, with a summary of how the Programme has evolved in the past 12 months including governance, management of benefits and resources;
 - (c) summarise the planned delivery in 2019/20, as well as key challenges and opportunities in the year ahead; and
 - (d) give assurance to the Committee on the progress of the Programme both in terms of delivery and in setting up robust arrangements for future years.
- 1.3 In July 2018, the Committee approved Programme and Project Authority of £518m, in addition to the original authority of £439m, bringing the total authority for Healthy Streets to £957m. Since that approval, some authority has been transferred to other portfolios, as detailed in Table 2. The restated authority for Healthy Streets after the transfers is £873m.
- 1.4 This paper requests approval for additional Programme and Project Authority of £334m, to bring the total Programme and Project Authority to £1.2bn. This includes a Programme and Project Authority request of £291m for 2019/20 and £417m for 2020/21, and retains the restated authority of £145m and £284m for 2017/18 and 2018/19 respectively - when accounting for the transfers mentioned above. The remaining £70m of authority that makes up the £1.2bn will cover incremental costs to the end of project stage. This is an allowance to ensure in-flight projects have sufficient Programme and Project Authority to get to the end of a stage that extends into 2021/22, reflecting commitments that made may need to be entered into, for example, procurement when a project starts a stage.

- 1.5 Table 1 provides a summary of the Programme and Project Authority request in 2019/20 and Appendix 1 shows the schedule of constituent projects and Estimated Final Cost (EFC) bands.
- 1.6 This authority request covers financial years 2019/20 – 2021/22. The Programme will return annually to the Committee to renew and validate a rolling two year approval. This will enable approvals to be aligned to financial years, which complements the nature of this Programme.

Existing Financial Authority for 2017/18 - 2021/22	Estimated Final Cost for 2017/18 - 2021/22	Existing Programme and Project Authority Requested for 2017/18 - 2021/22	Additional Authority Requested for 2017/18 - 2021/22	Total Programme and Project Authority Requested for 2017/18 - 2021/22
£1.6bn	£1.6bn	£873m*	£334m	£1,207m

*£957m requested in 2018 paper; figure restated after £84m transfer of Road Technology projects to Surface Technology Programme

Table 1 - Summary of Healthy Streets Programme and Project Authority Request in 2019/20

2 Recommendation

2.1 The Committee is asked to note the paper and:

- (a) approve additional Programme and Project Authority of £334m, giving a total of £1.2bn comprising:
- i. the already approved £145m from 2017/18, accounting for the reallocation of £10m of authority to the Surface Technology Programme;
 - ii. the already approved £284m from 2018/19, accounting for the reallocation of £29m of authority to the Surface Technology Programme;
 - iii. £291m to undertake all Healthy Streets Programme activities during 2019/20; and
 - iv. £417m to undertake all Healthy Streets Programme activities during 2020/21 and £70m for any project stage that is planned to commence in 2019/20 and 2020/21 but may extend into subsequent years; and
- (b) note that Procurement Authority in respect of various elements of the Healthy Streets Programme will be sought in accordance with Standing Orders.

3 Alignment of Healthy Streets Programme to Mayoral priorities

- 3.1 The Mayor's Transport Strategy (MTS) sets the direction for all activities undertaken by TfL, and states 'Healthy Streets and Healthy People' as one of three headline priorities. The Healthy Streets approach is therefore at the forefront of the Mayor's commitments in terms of the vision for Transport in the capital. The Programme is the vehicle to deliver specific projects that align to this initiative, to achieve outcomes pledged at the strategic level.
- 3.2 The Healthy Streets Approach provides a framework for putting human health and experience at the heart of planning the city. The primary objective is to deliver 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 MTS, as well as other targets such as reducing the number of people killed or seriously injured on the roads and encouraging Londoners to undertake two periods of 10 minutes of active travel per day.
- 3.3 Over the past 12 months, significant progress has been made towards further embedding the principles of Healthy Streets in the projects and programmes TfL delivers. It is only through understanding the policy approach in detail that outcomes can be delivered that maximise opportunities to achieve the target numbers of people walking, cycling and using public transport.
- 3.4 An extensive Healthy Streets training programme has been rolled out, aimed at TfL staff and borough colleagues who are involved in the design and delivery of projects. To date, 438 members of TfL staff have received the training, as well as 168 borough officers.
- 3.5 Upon completion of the training, attendees have been in a better position to be advocates for Healthy Streets, with an ability to articulate to a wider audience what the approach means on a practical level. For example, this knowledge has helped officers to explain the aims and objectives of schemes at public events and in response to correspondence that may query the rationale of proposed changes.
- 3.6 Following the inclusion of the Healthy Streets Check for Designers (HSCD) scores on the 2018/19 TfL Scorecard, the eligibility criteria for schemes to be included in the HSCD has been widened in 2019/20 so that the Healthy Streets Approach is now fully embedded across TfL. From 2019/20 a HSCD is mandatory for a Healthy Streets scheme if the scheme:
 - (a) is located on the Transport for London Road Network (TLRN) or is a Liveable Neighbourhood scheme; and
 - (b) it is expected to have a material change on the street environment. It would therefore not include traffic signal timing changes or bus lane operational hour changes.

- 3.7 The HSCD is also encouraged to be used for other schemes funded by TfL but delivered by London boroughs/third parties (e.g. schemes funded through borough Local Implementation Plans).
- 3.8 In 2018/19, the target of 10 per cent point average uplift in scores was exceeded with schemes averaging an 11 per cent point uplift. The presence of the design check as a KPI on the TfL scorecard and subsequent inclusion of a wider range of schemes underlines the importance of Healthy Streets in the performance of Surface Transport as a whole.
- 3.9 The Programme is now made up of four sub-programmes as described below. Details of changes to the Programme since last year's submission are provided in section 5.
- (a) **Transformational Schemes.** Major projects on the TLRN to deliver Healthy Streets outcomes, including safety and comfort for vulnerable road users, support for public transport, place-making, growth, regeneration and environment improvements;
 - (b) **Network Projects and Programmes.** Projects and programmes on the TLRN and Borough roads that support the delivery of Healthy Streets outcomes and modal shift including safety, urban realm, and bus priority;
 - (c) **Cycling Programmes.** Projects and programmes on the TLRN; borough roads that support modal shift to cycling (including safety initiatives) and additionally using opportunities to support and improve walking and public transport; and
 - (d) **Strategic Projects.** Significant strategic projects on TLRN and borough roads that support mode shift to walking, cycling and public transport and other Healthy Streets outcomes.
- 3.10 The constituent projects and programmes, and 2019/20 Programme and Project Authority requested from the Committee are detailed in section 6.
- 3.11 The financial implications, including over-programming and value-engineering are detailed in section 8. The Programme is ambitious, and there are both significant challenges and opportunities for delivery. These are set out in section 9.
- 3.12 We will continue to update the Committee on a quarterly basis throughout 2019/20 on progress with the Programme.

Background to the Programme

- 3.13 The first Healthy Streets Programme paper was approved by the Committee on 8 March 2017. The 2017 paper set out the strategic case for the Programme, its constituent projects and outcomes, together with the governance arrangements and supporting activities. This demonstrated why the Programme is needed in London: to optimise the efficiency of the transport network, improve transport's impact on the environment, support the economy and help people live more active, healthier lives. A second paper

was approved by the Committee on 3 July 2018, in which attention was drawn to the progress made to date, and the approach to embedding Healthy Streets was explained.

- 3.14 The Healthy Streets Programme was established as a single capital programme. A wide variety of investment programmes were brought together into the Programme, including TLRN enhancement schemes, investment that TfL provides to Boroughs through the Local Implementation Plan (LIP) process and schemes activated by third party funding.
- 3.15 London's local authorities are vital to delivering the Healthy Streets Programme. Large parts of the Programme are directly delivered by Boroughs, such as the Borough cycling investment through Quietways and Mini Hollands, and programmes such as Liveable Neighbourhoods, Crossrail Complementary Measures and LIP Major Schemes. Partnerships between TfL, Boroughs, third parties and stakeholders are also crucial to delivering the Programme effectively.

4 Healthy Streets Programme performance in 2018/19

Headline items delivered and financial performance

In terms of headline financial performance in 2018/19, there was a net outturn of £214m against a budget of £249m. This £35m underspend was primarily due to the cancellation of the Oxford Street transformation and deferral of Cycle Superhighway 11 (CS11). A key achievement was that the Programme made savings of £12m in 2018/19. A summary of Programme performance against key 2018/19 milestones is provided in Appendix 3.

Action Plans

- 4.1 Over the last 12 months we have translated elements of the MTS into more detailed Action Plans. This includes the following documents:
- 4.2 **Walking Action Plan** – this was launched on 19 July 2018 and showcases the numerous, innovative walking initiatives already underway across London. The key areas for action set out in the plan are to create better streets for walking through good planning and design, integrating walking with public transport, and leading a culture change. The document introduces two key targets:
- (a) increase the number of walking trips per day from 6.4m to 7.5m by 2024; and
 - (b) increase the proportion of walking trips to primary schools from 53 per cent to 57 per cent by 2024.

- 4.3 **Vision Zero Action Plan** – this was published on 24 July 2018, and sets out measures to eliminate deaths and serious injuries from London’s transport network by 2041. The plan introduces four key areas of focus:
- (a) safer speeds;
 - (b) safer streets;
 - (c) safer vehicles; and
 - (d) safer behaviours.
- 4.4 **Cycling Action Plan** – this was launched on 17 December 2018 and describes how we will work with boroughs, businesses and communities across London to enable more Londoners to cycle everyday journeys. The plan introduces three groups of actions:
- (a) designing streets that enable cycling;
 - (b) making it easy to cycle; and
 - (c) promoting cycling for all Londoners.
- 4.5 **Freight and Servicing Action Plan** – this was launched on 7 March 2019 and sets out actions developed in collaboration with industry experts and boroughs to support safe, clean and efficient freight as well as protecting land for freight consolidation centres and delivery hubs.

Key achievements in 2018/19 by sub-programme

Transformational Schemes

- 4.6 The Transformational Schemes sub-programme represents significant investment at some of London's most complex and high profile locations on the TLRN. Improvements are delivered to enable outcomes aligned with the Healthy Streets approach and Vision Zero, with each scheme being over £5m in value.
- 4.7 These large-scale reconfigurations of London’s strategic roads deliver significant safety and modal shift benefits by supporting walking, cycling and public transport. They also tend to act as a catalyst for growth and regeneration and this sub-programme can also present an opportunity to deliver tangible contributions towards Mayoral targets for new homes and jobs, and attract a growing local population to Healthy Streets modes.
- 4.8 Work has progressed well to transform **Highbury Corner**, with the removal of the 1960s gyratory. Two-way operations were introduced in April 2019, with the changes also including segregated cycle facilities, a partially opened arboretum, extension of the green space and new trees planted in a new public space. We have also opened a new direct crossing outside the station. Our main works will complete by the end of summer 2019. Further details of

the scheme are presented in Appendix 4, with details of some significant cost savings in paragraph 8.9.

- 4.9 Work began at **Old Street** to remove the roundabout, provide segregated cycle lanes and create a large public space that will incorporate a new station entrance.
- 4.10 **Fiveways Croydon** – Consultation has taken place and we have identified some changes to the design to improve project affordability, further improve the pedestrian environment and strengthen the cycling provision.
- 4.11 A way forward has been confirmed for the transformation of **Nine Elms**, to make the 2.5km corridor better for people walking, cycling and using public transport, and support the wider regeneration of the area. Proposals include a connecting cycle route to Cycle Superhighway 8 (Wandsworth to Westminster) and improvements to signals and junctions designed to separate cyclists and motor vehicles. Other measures include new, wider pavements, improved bus lanes and 23 new or improved pedestrian crossings. Feedback from the consultation will enable us to develop proposals for the western section, bringing further benefits to pedestrians and cyclists.

Network Projects and Programmes

- 4.12 **Healthy Street Local Schemes** is a sub-programme that delivers TLRN infrastructure improvement projects under £5m. The programme has a multi-modal focus, with scheme designs aligned to the MTS Principal Outcomes, Vision Zero and the Healthy Streets approach. The programme is focused on interventions that address a specific local issue – including new pedestrian crossings to help local people access schools and shops, footway build outs and decluttering to create a more pleasant street environment, and creation of places for rest and recreation for the community. The sub-programme plays an important role in reducing sources of road danger, creating environments that foster increased walking and cycling across London.
- 4.13 The **Bus Priority Programme** is a London wide sub-programme that covers both the TLRN and borough roads. The programme is vital to the delivery of high-quality bus services in London essential to giving Londoners a good public transport experience. Over 80 per cent of the sub-programme is on the borough road network, which is vital to the delivery of schemes providing bus journey time improvements and reliability benefits. In 2018/19, the programme delivered 143 schemes which are expected to save a total of 32 hours of bus journeys in each weekday peak period.
- 4.14 The **Liveable Neighbourhoods** sub-programme gives boroughs the opportunity to bid for funding for long-term schemes that encourage walking, cycling and the use of public transport, to create attractive, safe and healthy neighbourhoods. Seven projects were awarded funding in 2017/18, and a further eleven projects submitted successful bids in 2018/19. The original seven schemes in the sub-programme are at an advanced stage of design, with a number of projects expected to go to consultation in 2019/20 including transformational proposals to improve **Greenwich Town Centre**. The eleven

new schemes include an ambitious project to remove **Holborn gyratory**, to reduce severance, significantly improve the public realm and air quality, and introduce protected cycle lanes along High Holborn and Theobalds Road.

- 4.15 The **LIP Major Schemes** sub-programme forms an addition to the LIP grant funding to boroughs to enable delivery of the MTS, and has been closed to new bids since March 2017 - with the remaining projects to complete by 2021/22. Significant progress was made in 2018/19, with the completion of **Stratford gyratory removal**, delivering a step-change in the urban realm as well as significant improvements for pedestrians and cyclists. Construction also started on **Baker Street Two Way** in Westminster and the **West End Project** in Camden. When completed in 2019, the latter will reduce congestion and air pollution, speed up bus routes, and deliver safer facilities for cyclists - as well as regenerated public space. Other improvements include those introduced at **White Hart Lane**, complementing station improvements linked to the opening of the new Tottenham Hotspur Stadium and **Beckenham Town Centre** in Bromley.
- 4.16 In April 2017, the **Safer Junctions** sub-programme was established to target 73 of the most dangerous nodes on our road network (defined as those with the highest vulnerable road user collision rates between 2013 and 2015). We have now completed work at 29 of these junctions, and the remainder are either at construction or in design – with a total of 41 out of 73 planned to complete by May 2020. An initial review of the completed projects found there has been a 25 per cent collision saving on average across all locations. Recent highlights in 2018/19 include the completion of new pedestrian crossings on all arms of **Charlie Brown's Roundabout** in Redbridge, and works on **Euston Road/Judd Street** to make the junction safer and more pleasant for cyclists and pedestrians.
- 4.17 For the **LIP Corridors, Neighbourhoods and Supporting Measures programme**, budget is allocated to the boroughs using a needs-based formula. The programme has an annual budget of £63m, which is divided between the 33 boroughs with each borough typically receiving between £1-3m for transport improvements that support the MTS. In 2018/19 the boroughs worked on approximately 700 separate proposals, including improvements to pedestrian crossings, cycle parking, cycle training, road safety education, electric car charging points and bus stop accessibility.
- 4.18 The formula is structured around four transport themes:
- (a) public transport – bus reliability, bus patronage;
 - (b) road safety – monetary value of all casualties (killed, serious and slight) on all roads in the borough;
 - (c) congestion and environment – vehicle delay and CO2 emissions from transport; and
 - (d) accessibility – residential population weighted by index of deprivation.

- 4.19 The themes represent the transport outcomes that boroughs will need to deliver in order to achieve the MTS goals and priorities. In 2018/19 TfL has begun a discussion with London Councils and the boroughs to update the metrics behind the assessment of needs to better reflect the new MTS, for example looking at the gap to reach the Mayor's targets for 80 per cent movement by sustainable modes. This engagement will continue in 2019/20, with more details provided in section 5.

Cycling Programme

- 4.20 A number of critical cycling projects on both the TLRN and borough roads were successfully completed or continued. This includes completion of concept design and commencement of detailed design for proposed **Cycleways 4 and 9**, and the start of construction for the **route between Acton and Wood Lane** (formerly CS10). Delivery of over 140km of **Quietways** was achieved, together with further phases of the **Central London Grid**.
- 4.21 **Mini Hollands** – Highlights across the three project areas are as follows:
- (a) **Kingston:** Construction of a protected cycle route between Kingston Station and College roundabout;
 - (b) **Waltham Forest:** The removal of the Walthamstow Gyrotory (See Appendix 5); and
 - (c) **Enfield:** Construction of a protected cycle route between Enfield Town and Palmers Green, which has seen an increase in cycling of 42 per cent.
- 4.22 Significant progress has also been made on several major new routes, identified in the Strategic Cycling Analysis (2017). Stakeholder engagement for four routes, including **Tottenham Hale to Camden** and **Hackney to the Isle of Dogs** was undertaken and feasibility work commenced on a further three new routes, including a route extending from the eastern end of **C4 to Woolwich**.
- 4.23 **New Quality Criteria and Cycleways brand-** New Cycle Route Quality Criteria are being used to ensure that London's growing cycle network offers a consistent level of quality for users. The Quality Criteria set an expected level of quality for all new cycle routes, which projects must achieve if they are to secure TfL funding. The six interlinked quality criteria will be used to shape the design of cycling infrastructure, from an early stage in the design process. A simplified approach to naming cycle routes across London has been confirmed, with all cycle routes to be known as 'Cycleways'. This replaces the use of separate brands such as Cycle Superhighways or Quietways and will happen over the remainder of this financial year.
- 4.24 The **North-South Cycle Superhighway (CS6)** extension to King's Cross was substantially completed and opened to cyclists in August 2018.

Consultations have taken place on a range of projects including C9 (Kensington Olympia to Brentford High Street), C4 phase 1 (Tower Bridge Road to Greenwich) and Wood Lane to Notting Hill Gate. Consultation was also launched on proposals for a new pedestrian crossing at the Streatham High Road junction with St Leonard's to combat road safety issues at this collision hotspot, a longstanding aspiration of the London Borough of Lambeth. Consultations were launched for Quietway 14 (Tanner Street/Druid Street, London Borough of Southwark) and a Quietway link from Hoxton to Haggerston. Consultation results were published for Quietway 7 (West Dulwich).

Strategic Programme

- 4.25 **High Speed 2 (HS2)** is a high-speed railway which will link London and Birmingham by 2026 and is currently the largest infrastructure project in Europe. We are working closely with HS2 Limited to make sure that the transport system can support the new infrastructure.
- 4.26 Under the plans, HS2 services into and out of London will use an improved Euston station. A new station will also be built in the Old Oak Common area to allow interchange with services of the Elizabeth line (currently being built by Crossrail Ltd) and helping to regenerate the area.
- 4.27 Main civils construction works on Phase 1 (London to the West Midlands) are due to commence from late 2019, completing in late 2026. Environmental construction works commence in Early 2020 for Phase 2a (West Midlands to Crewe). HS2 Ltd is also proposing links to Leeds and Manchester by 2033.
- 4.28 In 2018/19, we have continued to work with HS2 and its contractors during RIBA stage 3 (concept design) at Euston and Old Oak Common, to ensure world class transport hubs are delivered at both sites that meet TfL requirements. A key milestone in 2018/19 has been the successful re-baseline of functional requirements to ensure TfL interfaces are fully considered. Initial construction work, including utility diversions, commenced with the main delivery phase to follow. We have been engaging with HS2's contractors at the earliest opportunity to ensure our site-specific requirements are factored in.
- 4.29 We have continued to work with the London Borough of Camden and HS2 Limited on an area-wide plan for Euston Road and surrounding roads, with the Healthy Streets approach integral to highways and urban realm proposals.
- 4.30 Developer-funded transport infrastructure improvements are planned at **Brent Cross** as part of one of the largest regeneration schemes in Europe. The scheme includes the expansion of Brent Cross Shopping Centre, a substantial mixed use development south of the A406 North Circular, and a new Thameslink station that will include new surface links across the railway. In February 2019 we approved detailed design proposals for improvements to the North Circular. The wider scheme includes bus priority, pedestrian and cycling improvements, most notably the new 'living bridge' connecting the

areas to the north and south, as well as highway capacity works and new public transport infrastructure.

- 4.31 In response to the challenging retail climate, the developers of the shopping centre, Hammerson Aberdeen Standard Life Limited have now put the project on hold, with a revised proposal expected by the end of 2019. We continue to work with the GLA and London Borough of Barnet to investigate ways to bring forward elements of the scheme in advance of the main shopping centre works.

Progress on recommendations made from the 2018 IAR

- 4.32 TfL Project Assurance completed an Integrated Assurance Review (IAR) on the Healthy Streets Programme in 2018, alongside a review from the Independent Investment Programme Advisory Group (IIPAG). Five IAR recommendations were made and accepted. Of the additional four recommendations made by IIPAG, two related to Healthy Streets.
- 4.33 Project Assurance tracks progress against these recommendations as part of its continuous assurance. A quarterly IIPAG progress report is submitted for consideration at the Committee, with recent reports confirming all of the actions listed above have now been addressed.
- 4.34 Section 10 provides details of the most recent IAR on the Healthy Streets Programme, which was completed in May 2019.

5 Changes to Healthy Streets Programme in 2018/19

- 5.1 Since the initiation of the Healthy Streets Programme, the way in which the programme is managed on a day-to-day basis has evolved to ensure it meets the challenges while continuing to add value. Changes to TfL's organisational structure, governance arrangements and processes, supported by new tools, have been developed and applied in 2018/19 to help achieve this.

Organisational structure

- 5.2 Since the submission of last year's paper, there have been some changes to the organisational structure of those accountable for the successful delivery of the Healthy Streets programme. A summary of the changes is as follows:
- (a) the creation of the new Investment Delivery Planning (IDP) directorate, which brings sponsorship of the majority of TfL projects within a single business function;
 - (b) inclusion of the Delivery Planning function of the City Planning team within IDP, to assist in the transition between strategic analysis and project delivery; and

- (c) some sub programmes and projects have been removed from the Healthy Streets Programme; most notably the Oxford Street Transformation and Roads Technology. Details of these are provided in paragraphs 5.12 and 5.14 respectively.

Redoubling efforts on cycling delivery

- 5.3 Significant investment is underway to improve the provision for, and increase the attractiveness of, cycling in London - and this year we have seen cycling increase in those areas where cycling investment has been concentrated to date. For instance, there has been significant growth in the Mini-Holland boroughs, and on Cycle Superhighways and Quietways, with many routes seeing more than 50 per cent uplift in users. Overall, in the most recent year, the total distance cycled in London has increased by 4.3 per cent, with increases in the average number of people cycling per day in central, inner, and outer London.

Launch of LIP3 to embed Healthy Streets into borough-led projects

- 5.4 The LIP is a statutory document produced by each of the London Boroughs that demonstrates how the MTS will be implemented at a local level on the roads for which the boroughs are directly responsible. Guidance was sent to boroughs in early 2018 ahead of their third LIP submission (LIP3), with TfL providing early engagement and support to help boroughs align their proposals with the Healthy Streets approach.
- 5.5 All boroughs have submitted their LIP3. The quality of submissions show the boroughs are committing to the Healthy Streets agenda, with a strong understanding of how this new policy direction can deliver significant benefits for local people using their roads.

Review of LIPs funding mechanism

- 5.6 TfL allocates over £200m funding to support the boroughs each year to deliver the MTS, in the form of:
 - (a) **corridors, neighbourhoods and supporting measures funding** based on a needs-related formula to support the delivery of Local Implementation Plans (LIPs). This funding is £63m each year;
 - (b) **discretionary funding** – additional funding for which boroughs submit bids, including Liveable Neighbourhoods; this varies year on year depending on the schemes being delivered;
 - (c) **strategic funding** – London-wide programmes / packages for borough roads where TfL research and analysis has identified needs. This included bus priority, cycle routes and air quality, and this varies by year depending on the schemes being delivered; and
 - (d) **asset condition funding** – maintenance funding based on asset condition surveys of the road network, and structures / bridges.

- 5.7 The existing funding formula for **corridors, neighbourhoods and supporting measures**, which calculates each boroughs' share, was last agreed in 2010 when the previous MTS was adopted. The existing formula therefore reflects the priorities of that strategy. The publication of a new MTS in March 2018 brings with it a new focus on Healthy Streets, Vision Zero, improving air quality and significantly increasing the level of active, sustainable and efficient travel.
- 5.8 TfL propose to undertake a review of the formula to determine whether it remains fit for purpose with the new Mayoral objectives. This was agreed with London Councils Transport and Environment Committee (TEC) in October 2018. The review process will include collaboration with the LIP3 Working Group (London Councils, borough officers and TfL) to develop and propose some alternative options for the formula, and an engagement plan for discussion of these options with all boroughs – including Members – by August 2019. Following this engagement, the final preferred option(s) will be circulated to borough officers in September 2019 and presented at London Councils TEC in October 2019.

Healthy Streets Review and update on key actions

- 5.9 In March 2019 Caroline Pidgeon MBE wrote to the Mayor outlining the findings of the London Assembly Transport Committee's investigation into Healthy Streets. The findings were supportive of the approach and ambition but were critical of the delivery and recommended that the Healthy Streets Approach is further embedded within TfL, with outcomes delivered sooner and of consistently high quality.
- 5.10 In response to this, TfL has outlined the initiatives to further embed Healthy Streets across the organisation through:
- (a) mandatory Healthy Streets training to all TfL sponsors and designers (as mentioned in paragraph 3.4);
 - (b) endorsement of the Healthy Streets Approach by TfL Senior Leadership;
 - (c) regular sharing of best practice in order to maximise the impact of Healthy Streets initiatives; and
 - (d) in 2019/20 the eligibility criteria for Healthy Streets Checks has been broadened and is anticipated to see a 5-fold increase in the number of schemes delivered through the Healthy Streets Approach.
- 5.11 To ensure that Healthy Streets schemes are consistently delivered to a high quality, TfL summarised two new programmes that will be introduced to support the aims of the Healthy Streets approach and introduce assessment criteria that must be met before TfL funding will be released to third parties and London boroughs:
- (a) Cycle Quality Criteria – six new quality criteria that all new Cycleways in London will have to satisfy; and

- (b) Liveable Neighbourhoods assessment criteria that will fund projects only if they meet specific Healthy Streets standards.

Oxford Street Transformation

- 5.12 In early June 2018, Westminster City Council announced it had taken a unilateral decision to withdraw from the joint project to transform Oxford Street. We have provided technical advice on Westminster's alternative plans for a safety project for Oxford Street, and continue to engage for a longer-term area strategy for the surrounding neighbourhoods.
- 5.13 With Oxford Street removed from the Programme, the majority of the funding was diverted to accelerating the design and delivery of future cycle routes across London. We have prepared a closedown report, with lessons learned.

Technology Projects

- 5.14 A new Surface Technology programme was established in 2018/19, incorporating the Roads Technology programme which was formerly part of the Healthy Streets portfolio.

Linking strategy to outputs and monitoring Programme delivery

- 5.15 A number of processes, tools and mechanisms exist to ensure that the priorities and aims of the MTS are delivered by the Programme. This section outlines the key elements of this alignment, including:
 - (a) embedding the MTS at a Programme level;
 - (b) embedding the MTS at a project level; and
 - (c) benefits management.

Embedding MTS Outcomes at a Programme level

- 5.16 The headline MTS outcomes have been expressed in the form of a table of subsidiary outcomes and related performance indicators, shown in Figure 1. The resulting framework has been replicated – with appropriate modifications – in TfL's key processes and tools, meaning there is a clear alignment between MTS outcomes and all programme activities.
- 5.17 The TfL Scorecard aligns with the MTS, providing a clear line of sight between the MTS, the Business Plan and how TfL monitors and drives its performance. The Scorecard indicators are shown in pink in Figure 1. In 2018 four new scorecard indicators were introduced to reflect the Healthy Streets Approach. The Healthy Streets Check (described below) is also on the TfL and Surface scorecards and is mandatory for all TLRN and Liveable Neighbourhood schemes in the Programme expected to have a material effect on the street environment (see paragraph 3.6). The Programme contributes directly to 13 of the 17 2018/19 scorecard measures.

- 5.18 In order to track and monitor progress towards MTS targets, progress is reported on a monthly basis to the MTS Delivery Group. The Chair of the Programme Meeting is a member of this group, as are a number of other members of the HSPB. This establishes visibility between our best understanding of the most critical issues in delivering MTS outcomes, and the work of the Programme in prioritising its projects.
- 5.19 This MTS delivery data is particularly useful in the Business Planning process, which provides the most important project prioritisation round in the annual cycle. Progress towards outcomes was used as a criterion in the 2018 Business Planning process, alongside our key priorities of (i) safety, and (ii) making savings in difficult economic circumstances.
- 5.20 Within the Programme, HSPB takes into account the progress expected and required to reach strategic targets, and uses that information in-year to select and prioritise projects. In this way, the Programme is balanced according to the most pressing strategic priorities. For example, if the latest data were to show that insufficient progress was being made towards the target for active travel, HSPB would examine the opportunities to prioritise or accelerate projects with particularly positive effects on active travel outcomes.

Embedding MTS Outcomes at the project level

- 5.21 A number of tools have been developed to integrate MTS priorities and the Healthy Streets Approach into the projects. These are designed to be used at key points in the project lifecycle:
- 5.22 A **Strategic Appraisal Framework (SAF)** has been built into Healthy Streets project documentation. Initially the SAF provides an 'area score,' which provides context for a scheme by showing local conditions, problems and opportunities, drawn from a range of MTS-aligned datasets. SAF outcome scores are generated by Sponsors for each project, indicating the expected level of the scheme's contribution to MTS outcomes. These outcome scores can be tracked through the life of a project, allowing HSPB to monitor the effects of any proposed changes to project scope.
- 5.23 The SAF area score is derived from the **CityPlanner** tool, which provides a spatial understanding of Healthy Streets priorities and opportunities across London by drawing together a range of datasets. It is particularly useful in the early development of schemes, both to inform the identification of areas for investment and in Outcome Definition. It is also useful in understanding the geographical spread of our current and planned investment.
- 5.24 The **Strategic Cycling Analysis (SCA)** is another tool that provides a robust evidence base for identifying and prioritising locations for new investment. The SCA presents potential corridors and locations where current and future cycle demand (and also demand for walking and public transport) could justify future investment. Plans for future cycling routes were based on the Strategic Cycling Analysis.

- 5.25 The **Healthy Streets Check for Designers (HSCD)** provides a framework for assessing scheme designs using ten evidence-based indicators of what makes streets healthy, attractive places, as detailed in paragraph 3.6.
- 5.26 The HSCD also features on the TfL and Surface Scorecards as a means of tracking improvements in design performance as an indicator of progress to making London's streets more attractive for active travel. Qualifying projects would be expected to undertake a final, post-project Healthy Streets Check as part of the benefits realisation process.
- 5.27 We have developed an improved methodology for assessing the impact of our projects on bus operating costs and revenue during the design stages and approval channels. We have also included a 'Bus Check' in all Authority papers, as detailed in paragraph 9.15.

Benefits Management and Benefits Realisation

- 5.28 Every project in the Programme expresses its contribution to MTS outcomes in terms of specific, measurable benefits. Expected benefits, and benefits delivered, are tracked through specifically-developed tools, such as the Cycling and Transformational Schemes benefits trackers, and the Project Optimisation Plans (POPs) for projects with an EFC of less than £1m.
- 5.29 A Healthy Streets Benefits Map has been developed, demonstrating the linkages between project benefits (often local and granular) through to MTS outcomes. The map also shows a single, preferred method of measuring any given benefit; measures are aligned to scorecard indicators wherever possible.
- 5.30 This approach provides a detailed understanding of each project's contribution to the outcomes, and provides a set of objective metrics through which projects can be compared, supporting the project prioritisation process.
- 5.31 Work continues to introduce new measures where there is an opportunity to make measurement more accurate or more efficient: For example, a Healthy Streets Mystery Shopper measure has been introduced to complement the Healthy Streets Check, to provide a consistent, objective and low-cost approach to measuring perceived quality of public realm before and after TfL interventions.
- 5.32 A key function of HSPB is to monitor benefits realised by projects, compared to benefits expected. For projects above £5m, a high level benefits realisation review report is expected. Example BRRs for Cycle Superhighways and Elephant & Castle are included in Appendix 6.
- 5.33 Work is ongoing, between Group Strategy, Transport Strategy Strategic Analysis, Demand Forecasting and Investment Delivery Planning to compile data to show the progress we expect to make over time to achieve the 2041 MTS outcomes. The resulting 'roadmap' will allow TfL to track progress against expectations. This will be one of the factors used in prioritising

Healthy Streets projects, allocating funding to support the outcomes where progress is most urgently needed.

Figure 1 - Mayor's Transport Strategy Key Indicators

Strategic Drivers/ Policies	MTS											Corporate		
	Mode share	Healthy Streets and Healthy People				A Good Public Transport Experience				New Homes and Jobs		People	Financial	Stakeholders
		Active	Safe	Space efficient	Green	Connected	Accessible	Reliability	Quality	Unlocking	Sustainable	Engaged	Prudent	Partnership
Outcomes for London	80% of journeys will be made by sustainable modes by 2041	London's streets will be healthy and more Londoners will travel actively	London's transport system will be safe & secure	London's streets will be used more efficiently & have less traffic	London's streets will be clean and green	More people will travel on an expanded public transport network	Public transport will be affordable and accessible to all	Journeys by public transport will be fast and reliable	Journeys by public transport will be pleasant	Transport investment will unlock the delivery of new homes & jobs	Sustainable travel will be the best option in new development	A capable & engaged workforce representative of London	We cover our costs and we are prudent	TfL works in partnership with its stakeholders to achieve shared goals
Aims	80% sustainable mode share	2x10 minutes active	Vision Zero	10% less freight CCZ	Zero emissions		Better accessibility			XR2 & Metro	Good growth principles			
Proposed Primary outcome indicators Scorecard and Portfolio level indicators	M1. Mode share of trips in London	A1. Attitudes to cycling & walk experience	S1. Road Collision KSIs	E1. Measure of roads reputation	G1. CO ₂ emissions from road transport	C1. Trips by public transport by mode	AC1. People with accessibility needs have the confidence to travel	RQ1. TfL cares about it's customers	Q2. Customer satisfaction with public transport	U1. Delivery of housing on TfL land	SU1. Londoners can live well without a car	EN1. Engagement index	P1. Net operating surplus	PP1. Stakeholders see TfL as an agent of positive change
	M2. Trips by car	A2. Healthy Streets score for London's streets	S2. Number of people killed on or by a bus	E2. Person kilometres by mode	G2. NO _x emissions from road transport	C2. Public transport capacity	AC2. Additional time to make step-free journeys	R2. Public transport reliability & performance by mode: • Buses • LU • TfL Rail • London Overground • DLR • Trams	Q3. Crowding on public transport services by mode	U2. Connectivity of London households	SU2. Summary of basket of measures reflecting good growth principles in new developments	EN2. Workforce representativeness indices	P2. Cash balance	PP2. TfL has an effective working relationship with London's boroughs
	M1: Quarterly measure for London residents only	A3. Residents doing 2x10 mins active travel daily	S3. Crime on TfL's transport network	E3. Vehicle kilometres by vehicle type	G3. Particulate (PM) emissions from road transport	C3. Public transport connectivity	AC3. Amount of travel by those with accessibility needs	R3. Assets in a good state of repair	Q4. Perceived value for money		SU3. Household car ownership	EN3. Staff have the tools & support they need to do their jobs	P3. Planning prudently for the longer term	PP3. TfL has a positive reputation with businesses
		A4. Cycle and walk trips: • London wide • In central London	S4. Injuries on the PT network (workforce & customers)	E4. Freight trips in CCZ am peak	G4. Biodiversity measures (green cover & trees)	C1: Quarterly measure based on passenger volumes					SU2: Quarterly update on emerging development areas		P4. Revenue generation from third parties	
		A5. Access to the cycle network		E5. Measure of delay & reliability										
		A4: Quarterly measure for Central London only												

6 Activities proposed for the year ahead

Transformational Schemes

- 6.1 Works to remove the gyratory at **Highbury Corner** will be completed, with the new and improved pedestrian crossings, segregated cycle tracks and public space culminating in a step change from how this major junction on the A1 operates. While directly improving facilities for pedestrians and cyclists, the enhanced urban realm will promote regeneration benefits in the local area.
- 6.2 Main works commenced early in this financial year to remove the gyratory at **Old Street Roundabout**. This will also see the introduction of safe segregated cycling and enhanced pedestrian facilities, along with a significant enhancement to the urban realm in the form of a new public space.
- 6.3 We are developing a transformational scheme at the **Waterloo IMAX roundabout**. Following a successful consultation and subsequent changes to the design based on feedback from local stakeholders, we are testing the feasibility for a start to construction activity in early 2020.

Networks Programme

Bus priority

- 6.4 There will be approximately 150 bus priority schemes completed in 2019/20, with a target of reducing journey times by 24 bus hours (per day) across the network. One of these schemes includes making changes to the **Madeley Road junction on the A406**, with the intention of achieving a seven minute reduction in journey times for Route 112. Significant progress will continue to be made on developing a longer term pipeline for bus priority measures across the network.

Safer Junctions

- 6.5 The Vision Zero Action Plan sets out a target for 41 schemes of the 73 to be completed by May 2020 (with 29 currently complete) – these include New Kent/Harper Road, Balls Pond/Kingsland Road, and Clapham Road/Union Road. Key delivery challenges include the pressures on the road network in the latter part of 2019, and achieving sufficiently ambitious designs whilst mitigating impacts on bus passengers.

Liveable Neighbourhoods

- 6.6 Feasibility work is to be completed at Crouch End, Hackney Central, Greenwich Town Centre and Deptford Parks in 2019/20. Three boroughs plan to secure next stage funding to complete feasibility design, with projects at West Ealing, Romford Ring Road and Coppermill Village due to receive funding to complete concept design. Provision of funds is subject to submitting documents, as set out in the Liveable Neighbourhoods borough guidance. Eleven new Liveable Neighbourhoods are funded to proceed through feasibility (see paragraph 4.14) by the end of the financial year.

Healthy Streets Local Schemes

- 6.7 We will complete 16 projects by March 2020, including road safety improvements at Clifton's roundabout in Greenwich, new pedestrian crossings at Philips Lane in Haringey, Warwick Road in Kensington and Chelsea, and Stirling Corner in Barnet. We will also create a safer and more pleasant environment for cyclists and pedestrians at the A21 Tweedy Road in Bromley, implementing direct crossings with new traffic signals for cyclists.

Cycling Programme

- 6.8 In line with the Mayor's aspiration to have a strong rate of delivery for cycling schemes in 2019/20, there are a number of key project milestones due to be achieved. Highlights for the **Mini Hollands** programme include completing the A1010 section and Waltham Forest by August 2019; Lea Bridge Road by October 2019; an extra 4.3km of segregated cycle lanes constructed in Kingston and 4km of protected lanes in Enfield by March 2020.
- 6.9 An extra 4km of **Quietways** will be delivered in Kingston by October 2019, with 70 per cent of the originally planned **Central London Grid** and Quietways network on the TLRN constructed by March 2020.
- 6.10 In terms of new cycle routes, CS EW Hyde Park North Carriage Drive has recently opened in June 2019, with advanced works due to start on the future route between Hackney and the Isle of Dogs in late 2019. Construction will start on **C4** in summer 2019 and at Kew Bridge on **C9** (Eastern section) by January 2020.
- 6.11 There will be further consultations completed on cycle routes throughout 2019/20, as follows:
- (a) Wood Lane to Notting Hill Gate;
 - (b) Hackney to the Isle of Dogs;
 - (c) C4 - Lower Road Gyratory;
 - (d) Lea Bridge to Dalston;
 - (e) Ilford to Barking Riverside;
 - (f) Old Street to Clerkenwell bus and cycle route; and
 - (g) Greenwich to Woolwich.
- 6.12 We continue to work in close collaboration with the London Boroughs of Camden, Islington, Haringey and Hackney on developing proposals between Camden and Tottenham Hale, with a view to launch a public consultation in early 2020.

Strategic Programme

- 6.13 As reported under the 'Use of Delegated Authority' agenda item, the Committee approved the recommendation that the **Rotherhithe to Canary Wharf Crossing** project should return to Pathway Stage 2. A combination of increased capital costs, the financial impact from a subdued economy and a lack of certainty over our long term capital funding, together with an absence of alternative funding sources, indicates the bridge option is unlikely to be affordable in the short to medium term.
- 6.14 While the bridge remains a long-term aspiration, we will now investigate the viability of an enhanced ferry crossing as a more affordable short-term solution. This would help more Londoners walk and cycle and support growth in two major Opportunity Areas by providing a vital link between existing and planned cycle routes on both sides of the river.
- 6.15 We will work with Old Oak and Park Royal Development Corporation (OPDC) and **HS2** to agree a Delivery Strategy for Old Oak Bridge. The new link between the proposed Old Oak Common Station and Old Oak North development area will be aligned with Healthy Streets, and support the Mayor's aspirations for the Old Oak Common Opportunity Area.
- 6.16 In partnership with the OPDC, we are ensuring design proposals align to the Healthy Streets approach, through prioritising walking, cycling and public transport.
- 6.17 Further engagement will take place with HS2 Limited and its contractors through the RIBA stage 3 process, with this activity due to culminate in planning submissions in the 2019/20 financial year. We are also working to agree integrated ways of working with HS2 Ltd and their main works contractors.

Healthy Streets Programme 2019/20 – constituent projects and programmes

- 6.18 The full scope of the 2019/20 Programme, and the Programme and Project Authority that is being requested, is set out in Table 2. The table has been structured to align with the four separate programmes, as described in section 3: Transformational Schemes; Network Projects and Programmes; Cycling Programmes and Strategic Projects. For each of the Programme's projects, the table sets out:
- (a) **Description** - the name of the major projects and programmes that comprise the Healthy Streets Programme;
 - (b) **Financial Authority** – the funding that has been set aside for each project and programme in the TfL Business Plan (as approved in December 2018 by the Finance Committee acting under delegated authority from the Board);

- (c) **Programme and Project Authority** – the Programme and Project Authority that is being requested from the Committee in this paper. This is comprised of three elements:
- i. **2019/20 investment** – the Programme and Project Authority for all projects in 2019/20 (this is equal to the 2019/20 Budget);
 - ii. **2020/21 investment** – the Programme and Project Authority for all projects in 2020/21 (this is equal to the amount set out for the 2020/21 Financial Year within the 2018 Business Plan);
 - iii. **Incremental cost to end of stage** – an allowance to ensure in-flight projects have sufficient Programme and Project Authority to get to the end of a stage where that stage extends into 2020/21 and beyond. This reflects the commitments that may need to be entered into (eg procurement, when a project starts a stage); and
 - iv. **Total** – the sum of the total Programme and Project Authority being requested in this paper.

6.19 All projects in the Programme were included in the approved 2018 TfL Business Plan and will deliver improvements to public transport, road safety, the public realm, walking and cycling, as well as improving the health of Londoners, to achieve Mayoral outcomes.

6.20 The Committee will continue to be updated on a quarterly basis throughout 2019/20 on progress with the projects and sub-programmes described in Table 2. This lists the schemes and their major benefits, and it should be noted that all schemes also aim to deliver safety benefits. Further details of the authorities sought and the financial implications are set out in section 8.

Table 2 - Healthy Streets Programme: Constituent projects and the Programme and Project Authority requested from the Committee

Description		2019/20 Programme and Project Authority Request (£m)								
		Financial Authority for 2017/18 - 2021/22 £m	2017/18 investment	2018/19 investment	2019/20 investment	2020/21 investment	Incremental cost to end of stage	Total Programme and Project Authority Requested for 2017/18 - 2021/22	Existing Programme and Project Authority Requested for 2017/18 - 2021/22	Additional Authority Requested for 2017/18 - 2021/22
TRANSFORMATIONAL PROGRAMME										
Major transformational projects on the TLRN to deliver Healthy Streets Outcomes, including place making, growth, regeneration and environment improvements. Projects include Wandsworth Gyratory, Vauxhall Cross and Old Street Roundabout		277	29	32	45	75	43	224	177	47
NETWORKS PROGRAMME	Bus priority	79	21	18	16	17	0	72	62	10
	TfL delivered schemes <i>Programmes such as Safer Junctions, Healthy Streets Local Schemes, and Major Network projects such as Gunnersbury Avenue</i>	164	17	20	51	46	0	134	74	60
	Borough delivered schemes <i>Programmes such as Liveable Neighbourhoods, LIP Majors, LIP Corridors and Crossrail Complementary Measures</i>	502	45	110	107	99	27	388	268	120
Projects and Programmes on the TLRN and Borough roads that support the delivery of Healthy Streets Outcomes including safety, urban realm and modal shift										

Description		Financial Authority for 2017/18 - 2021/22 £m	2017/18 investment	2018/19 investment	2019/20 investment	2019/20 investment	Incremental cost to end of stage	Total Programme and Project Authority Requested for 2017/18 - 2021/22	Existing Programme and Project Authority Requested for 2017/18 - 2021/22	Additional Authority Requested for 2017/18 - 2021/22
CYCLING PROGRAMME Programmes on the TLRN and Borough roads that support the delivery of Healthy Streets Outcomes including modal shift and safety	Cycle Superhighways <i>eg Cycle Superhighway 4, Cycle Superhighway 9, Cycle Superhighway East / West and Cycling Future Routes</i>	353	32	42	91	121	0	286	153	133
	Borough cycling <i>Central London Grid, Quietways and Mini Hollands</i>	171	37	40	38	32	0	147	128	19
STRATEGIC PROGRAMME Surface infrastructure schemes that deliver a step change in provision for London's travelling public. Projects are categorised as Major schemes due to their size, complexity, stakeholders, consents, funding mechanism or innovative nature. The programme includes major third party funded schemes such as Brent Cross , HS2 and the Rotherhithe to Canary Wharf river crossing .		185	11	71	19	43	0	144	122	22
VALUE ENGINEERING & OVER PROGRAMMING Targeted efficiency savings and over programming allowance to reflect delivery risk assessments		-131	-47	-49	-76	-16	0	-188	-111	-77
Healthy Streets Total		1,599	145	284	291	417	70	1,207	873	334
TRANSFERS TO OTHER PORTFOLIOS Road Technology Programme has transferred to Surface Technology Portfolio. Also Congestion Charging and S278 transferred from 18/19.		75	10	29	17	23	1	80	84	-4
Adjusted Total		1,674	155	313	308	440	71	1,287	957	330

Business case aspects

- 6.21 Projects within the Programme are required to develop their own business cases in order to demonstrate their individual case for investment. This includes the strategic case for investment and alignment to the MTS, and value for money. Business cases for projects within the programme follow TfL's existing standards and guidance for business case development, benefits management and project management.

7 Legal Implications

- 7.1 There may be elements of the Programme for which a delegation of the Mayor's general powers under the Greater London Authority Act 1999 are required, in order that TfL can progress those elements that are not strictly transport matters.

8 Financial Implications

- 8.1 TfL's 2018 Business Plan sets out the plans for the transport network over the five years 2019/20 to 2023/24 and provides the financial authority needed to deliver the scope of the work set out in this paper. Our latest budget for 2019/20 was approved by the Board on 27 March 2019.
- 8.2 TfL's Business Plan and Budget includes financial provision for the full year's scope of work for which Programme and Projects Authority is now being sought. A summary of the budget for 2019/20 and business plan costs to 2023/24 is shown in Table 3.

Table 3 - Healthy Street Programme budget and Business Plan costs to 2023/24

Healthy Streets Programme £m	Request for	Request for	Budget	Business Plan		Total Programme and Project Authority Requested for 2017/18 - 2021/22	Existing Programme and Project Authority Requested for 2017/18 - 2021/22	Additional Authority Requested for 2017/18 - 2021/22	Business Plan		
	2017/18	2018/19	2019/20	2020/21	2021/22				2022/23	2023/24	
Portfolio Total	193	350	367	434	506	1,850			493	428	
Over-programming	(38)	(37)	(76)	(17)	(31)	(199)					
Total	155	313	291	417	475	1,651			493	428	
Transfers to other portfolios	(10)	(29)				(39)					
Restated Total	145	284	291	417	475	1,612			493	428	
Split by funding source	TfL funded	142	249	278	358	409	1,436			449	422
	Third Party funded	13	35	13	57	66	184			44	6
LIP (see 2018 PIC submission)	77					-					
Additional savings achieved (see Appendix 2)	(5)	(52)				(57)					
Additional slippage (see Appendix 2)	(18)	(19)				(37)					
Road Technology additional savings (see Appendix 2)		1				1					
Road Technology additional slippage (see Appendix 2)		12				12					
Financial Authority for 2017/18 - 2021/22	199	225	291	417	475	1,607			493	428	
(i) 2017/18	145					145	145	-			
(ii) 2018/19		284				284	284	-			
(iii) 2019/20			291			291	415	(124)			
(iv) 2020/21				417		417	17	400			
(v) Incremental cost to end of stage					70	70	12	58			
(vi) This Authority Request (Total)	145	284	291	417	70	1,207	873	334			
Future Authority Requests					436	436			493	428	

8.3 In 2018/19, we requested £284m of Programme and Project Authority (restated after transfers of £29m to other portfolios). The financial outturn for 2018/19 was £225m, the movement to Programme and Project Authority is due to additional savings of £51m (mainly due to the cancellation of Oxford Street transformation) and additional slippage of £7m compared to target. This year, the Programme and Project Authority request is £291m, an increase of £8m compared to the 2018/19 request.

- 8.4 In the 2018/19 authority request to the Committee, for 19/20, we requested £415m Programme and Project Authority. This has reduced by £124m to £291m for 19/20 in this year's request. The main reasons for the variance are:
- (a) an increase in overlay of £62m. The overlay includes both overprogramming and value engineering, with the variance mainly due to an updated overprogramming calculation. The previous year's 19/20 calculation would have included a reversal of the 18/19 overprogramming figure as there would be an assumption that any funding re-profiled from the previous year would be spent in 19/20. In the 19/20 calculation, any re-profiling would already be included in the gross figures;
 - (b) the removal of Oxford Street transformation from the programme (£26m); and
 - (c) a reduction in Transformational Schemes (£42m). This is primarily due to a reduction in funding required for A23 Fiveways (£22m), and Wandsworth Town Centre (£18m). This reduction was owing to a change of scope during the 2018/19 request, and land purchases now expected in future years, respectively.

Compulsory Purchase Orders (CPOs)

- 8.5 Two projects within the 'Transformational Schemes' category, namely 'A23 Fiveways Croydon' and 'Wandsworth Gyratory Removal', will require Compulsory Purchase Orders (CPO) to acquire the land essential to deliver the projects. It is anticipated that the approval of the Board (in accordance with Standing Orders) will be sought in autumn 2019, for Fiveways, and winter 2019, for Wandsworth. The CPOs for these projects have been delayed from the expected request in 2018/19.

Over-programming

- 8.6 The Programme includes £64m of over-programming in 2019/20, to recognise that slippage may occur. The last four years outturn against budget was reviewed to estimate the percentage that should be for over-programming. A comparison calculation was also undertaken assessing each discrete project for inherent scoping and delivery risk, and applying an appropriate adjustment to the delivery estimate. This also took into account where the project is in the Pathway lifecycle, as more established projects are less likely to slip due to their more clearly defined scope. The two calculations were comparable and the agreed percentage input was 15 per cent over-programming for Revenue and 25 per cent for Capital.

Value Engineering

- 8.7 A Value Engineering process has been established within the Surface Transport Project and Programme Delivery Directorate with the aim of embedding cost-conscious project delivery. Value Engineering reviews take place throughout the scheme design process and are used to make objective

challenges to schemes planned spend, to ensure that opportunities are taken to minimise costs, while not impacting the quality and benefits of the final scheme. An example of savings includes minimising the use of premium materials for carriageways and footways.

- 8.8 The combined impact of initiatives to reduce costs in 2018/19, such as driving out lower costs from existing contracts, value engineering projects, reduced consumption, lower unit costs and management of risk, has achieved an overall programme benefit of £13m against a target of £9m (excluding Oxford Street and Road Technology). This included savings that have been crystallised outside of the formal Value Engineering reviews.
- 8.9 An example of Value Engineering is on the Highbury Corner gyratory removal project where £0.8m savings were achieved in 2018/19, with potential further savings of £0.5m identified in 2019/20. The main areas for savings included modifying the design to reduce the number of underground utility diversions required, coordination of resurfacing with other works nearby and collaborative working with Buses colleagues.
- 8.10 The Programme includes £12m of value engineering to be achieved in 2019/20.

9 Challenges and Opportunities

Ensuring value for money

- 9.1 The Healthy Streets Programme includes ambitious delivery targets across the TLRN and borough road networks. We are confident that we can deliver this despite the difficult financial conditions we are facing. Our recent Business Plan described these pressures, which include the loss of £700m every year in government grant, a subdued economy affecting demand for our services, and the impact of the delay to the opening of the Elizabeth line. It also details how we are responding to them, through prudent investment, a wide-ranging savings programme and steps to increase other sources of revenue. That programme will continue this year, with work underway to identify further efficiencies and reduce our back and middle office costs by 30 per cent.
- 9.2 Over the last three years we have made unprecedented progress in reducing our year-on-year, like-for-like operating costs. We also made some difficult decisions in our Business Plan to defer key projects in other parts of the business, including significant London Underground station and signalling upgrades.

Maintaining strong rate of delivery

- 9.3 As well as bringing the tight management of finances into sharp focus, we have also initiated a major review of the project lifecycle. The purpose of this is to reduce the amount of time and money spent on delivering improvements on the London road network. This work is considered essential in order to maintain and improve our delivery rate against the ambitious programme.

- 9.4 To that end, an action plan has been developed to ensure high quality projects will continue to be delivered, while streamlining or removing processes that can sometimes stifle progress. Owners have been assigned to lead on each of the key areas of focus below:
- (a) behaviours and culture;
 - (b) improved early outcome definition;
 - (c) governance;
 - (d) project management;
 - (e) design development and approvals;
 - (f) assurance; and
 - (g) communication and engagement.
- 9.5 As 95 per cent of London's road network is managed by Boroughs as Highway Authorities, it is essential for TfL to work collaboratively to achieve the 80 per cent target mode share for walking, cycling and public transport. While we have developed action plans and programmes that prioritise investment on the borough network in a way we feel would maximise opportunities to achieve these targets, we must ensure a shared accountability and sense of urgency with borough colleagues.
- 9.6 This approach will help to maintain the delivery of outcomes aligned to Mayoral aspirations at a pace that meets expectations. We must build on recent progress with regards to working closely with boroughs and ensuring investment made on London's road network delivers outputs and outcomes to a consistently high standard, at a pace that enables tangible progress towards objectives stated in the MTS. A key risk to the programme is for this interface to not be managed as comprehensively as it should, so it must therefore continue to be a priority for TfL to invest time communicating the benefits of the MTS at a local level, and how this translates into wider goals.
- 9.7 Specific challenges facing boroughs and the execution of the collaborative working practices mentioned above include: resource constraints to deliver ambitious projects that could be introducing significant change; changes to political administrations that can disrupt delivery progress; and our ability to closely track delivery throughout the financial year and project lifecycles, in the absence of direct project management and associated reporting activities within TfL.

Protecting Bus patronage and revenue

- 9.8 Our most recent analysis on the demand for public transport shows that bus demand in 2018 had fallen back to levels comparable to 2010, reflecting the declines in patronage observed in recent years. A key influence is thought to be an incomes squeeze which particularly affects families on low incomes: the core market for buses. A reduction of bus speeds on certain routes is also

considered to be a contributory factor. The number of bus journeys fell by 1.6 per cent in 2018, compared to 2017.

- 9.9 To support London's growth and achieve the Mayor's 2041 target of 80 per cent of all journeys being made by sustainable methods, bus patronage will need to increase by 40 per cent.
- 9.10 The needs of bus passengers must be considered alongside those of people walking and cycling at the earliest stages of scheme design.
- 9.11 Further bus priority will be essential to give Londoners a good public transport experience. This will be planned in a new, holistic way with other road users: for example, opportunities for further improvements for cycling will be integrated into the scheme design. This will achieve the best result for public transport, walking, cycling and essential freight, as well as improving the public realm and reducing emissions.
- 9.12 Central London is where there is the greatest opportunity to improve bus journey times and reliability through the deployment of bus priority measures. These might include 24-hour bus lanes and bus- and cycle-only corridors.
- 9.13 Many of the main radial roads in inner London are key bus routes to central London. They carry large numbers of people and it is essential they continue to do this reliably. But these bus routes must also work well for the communities and town centres they pass through. Measures to improve bus reliability on these routes will include revised bus lane hours, traffic signal priority, policing and enforcement, behaviour change initiatives and priority measures. To improve air quality, low emission buses will be deployed along these routes.
- 9.14 We intend to address the challenges facing the bus network by focussing on some key initiatives, including:
 - (a) developing a core network of reliable bus services in central London, through the provision of bus priority corridors;
 - (b) delivering bus priority to support the low emission buses being rolled out in the 12 Low Emission Bus Zones. Improvements will include signal schemes and reviewing bus lane hours;
 - (c) delivering bus priority on the busiest passenger links, including working with the boroughs to undertake a data-led review of all bus lane hours and to fill the gaps in bus priority on the busiest bus routes. These bus lanes represent a valuable transport asset and they must be utilised when bus passengers and people cycling need them most; and
 - (d) improving conditions for buses serving inner and outer London town centres and providing orbital links.

In terms of governance, we have recently included a 'Bus Check' as a new section in Authority papers considered at the appropriate Boards. This will ensure impacts on the bus passengers, the cost and feasibility of operations

will be made clear to stakeholders at key points throughout the project lifecycle. Alongside the Healthy Streets Check, the clearer presentation of potential impacts in the papers will provide enhanced transparency to inform investment decisions.

Achieving Vision Zero

- 9.15 Our Vision Zero policy and Action Plan aims to eliminate deaths and serious injuries from the transport network by 2041. This will prove extremely challenging, particularly on the road network. Our data shows that in London there have been significant reductions in deaths and serious injuries (KSIs) in road collisions since our baseline years of 2005-09, with the number reducing by approximately a third. In the last two years however the rate of reduction appears to have levelled out, a trend which began more widely in the UK and across Europe in around 2012 but which we were able to avoid until more recently. Consequently in the last year we recorded over 4,000 KSI injuries of which approximately 80 per cent were suffered by the most vulnerable road users who do not benefit from being inside a vehicle – cyclists, pedestrians and powered two wheeler riders.
- 9.16 As mentioned in paragraph 4.3, we published a Vision Zero Action Plan in 2018, setting out how we and our partner agencies, would act to continue to reduce KSIs. This plan is based on the principle that some level of human error is inevitable and therefore if we are to eliminate KSIs a systemic approach is required in which human error does not have catastrophic consequences. Our plan sets out a series of activities under the Safe Systems headings of Safe Speeds, Safe Streets, Safe Vehicles and Safe Behaviours.
- 9.17 Our continued investment in measures that will reduce risk to road users is essential, however we also need to take action to ensure that we achieve maximum benefit from those investments and that reducing risk is at the heart of all our activity and decision-making.

Setting a path to achieve 80 per cent walking, cycling and public transport

- 9.18 The recent decline in public transport trips should be seen in the context of current economic climate and changing nature of trips. However, forecast population growth means to achieve mode shift we need to pursue these priorities:
- (a) further increase the attractiveness of public transport focusing on Metroisation and bus priority while also increase the relative cost of car use through next generation road user charging;
 - (b) maximise the active travel component of all trips whilst pursuing road space reallocation to favour these trips;
 - (c) embed walking, cycling and public transport to enable car-free / car-lite developments; and

(d) complete and start running services on the Elizabeth line.

10 Assurance

- 10.1 TfL Project Assurance conducted an Integrated Assurance Review (IAR) on the Programme in May 2019. The objective of the IAR was to provide the Committee with a report on the Programme's readiness to deliver its outcomes. The IAR followed eight lines of inquiry to, ultimately, answer the challenge of "Is the Programme sufficiently well managed for the Committee to award authority (and delegated authority where appropriate) over the next 12 months?". An independent review was also undertaken by TfL's Independent Investment Programme Advisory Group (IIPAG).
- 10.2 While there were no critical issues identified through the review, six recommendations were made for the programme to consider. A further seven recommendations were made by IIPAG. Details of these recommendations and our Management Response have been shared with the Committee.
- 10.3 An integrated Assurance Plan (IAP) for the Programme over the following 12 months, agreed by the relevant Directors and Head of Assurance, is a required product of the Programme review. The IAP sets out projects and programmes within the Programme that are expected to undertake an Assurance Review in 2019/20.

List of appendices:

- Appendix 1 – Schedule of constituent 2019/20 projects and EFC bands
- Appendix 2 – Analysis of 2018/19 financial outturn compared to approved Programme and Project Authority
- Appendix 3 – Status of Healthy Streets Programme milestones (February 2018)
- Appendix 4 – Highbury Corner gyratory removal (case study)
- Appendix 5 – Hoe Street / Selborne Walk – Walthamstow gyratory removal (case study)
- Appendix 6 – Example Benefits Realisation Reports (BRR's)

Background papers:

- 2018/19 Healthy Streets Committee Paper
- Annual update on the Mayor's Transport Strategy - 22 May 2019
- Local Implementation Plan 3 (LIP3) Guidance
- Independent Investment Programme Advisory Group (IIPAG) Report 2019
- IAR Report 2019
- Management Response to IAR and IIPAG Reports 2019

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Appendix 1: Schedule of constituent projects and Estimated Final Cost (EFC) bands

Initiative £m	EFC Band	Existing Programme and Project Authority Requested for 2017/18 - 2021/22	Total Programme and Project Authority Requested for 2017/18 - 2021/22	Additional Authority Requested for 2017/18 - 2021/22
Wandsworth Gyrotory Removal	£50m<EFC<£100m			
A23 Fiveways Croydon	£50m<EFC<£100m			
Vauxhall Cross	£50m<EFC<£100m			
King's Cross	£25m<EFC<£50m			
Old Street Roundabout	£25m<EFC<£50m			
Transformational Projects with £1m<EFC<£25m	£1m<EFC<£25m			
Transformational Projects		£177	£245	£68
Bus Priority Borough	EFC>£100m			
Bus Priority TLRN	£50m<EFC<£100m			
Bus Priority		£62	£72	£10
Healthy Street Local Schemes	EFC>£100m			
Safer Junctions	EFC>£100m			
20mph	£50m<EFC<£100m			
Network Projects with £1m<EFC<£25m (TLRN)	£1m<EFC<£25m			
TfL led Network Projects		£75	£128	£53
LIP Corridors	EFC>£100m			
LIP Major Schemes	EFC>£100m			
Liveable Neighbourhoods	EFC>£100m			
Crossrail Complementary Measures	£25m<EFC<£50m			
Network Projects with £1m<EFC<£25m (Borough)	£1m<EFC<£25m			
Borough led Network Schemes		£268	£350	£82
Cycle Superhighway 4	£50m<EFC<£100m			
Cycle Superhighway 9	£50m<EFC<£100m			
Cycle Superhighway 10	£50m<EFC<£100m			
Cycle Superhighway North South Phase 2	£5m<EFC<£25m			
Cycle Future Route 2	£50m<EFC<£100m			
Cycle Future Route 5	£50m<EFC<£100m			
Cycle Future Route 11	£50m<EFC<£100m			
Cycle Superhighways with £1m<EFC<£25m	£1m<EFC<£25m			
Cycling Future Routes	£50m<EFC<£100m			
Cycle Superhighways		£153	£286	£133
Cycling Quietways	EFC>£100m			
Central London Cycling Grid	£50m<EFC<£100m			
Mini Holland Enfield	£25m<EFC<£50m			
Mini Holland Kingston	£25m<EFC<£50m			
Mini Holland Waltham Forest	£25m<EFC<£50m			
Borough Cycling		£128	£146	£18
Rotherhithe to Canary Wharf Crossing	TBC			
High Speed 2 (fully funded by third parties)	£25m<EFC<£50m			
Strategic Projects		£122	£141	£19
Value Engineering		-£36	-£48	-£12
Overprogramming		-£76	-£140	-£64
Healthy Streets Total		£873	£1,180	£307
Transferred Road Technology Projects		£84	£87	£3
Value Engineering RT			-£7	-£7
Overprogramming RT			-£1	-£1
Total with Road Technology		£957	£1,259	£302

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Appendix 2: Analysis of 2018/19 outturn compared to approved Programme and Project Authority

	£m	Authority request: 2018/19 investment	Savings	Scheduling	Transfers	18/19 Outturn	19/20 budget
TRANSFORMATIONAL PROGRAMME Major transformational projects on the TLRN to deliver Healthy Streets Outcomes, including place making, growth, regeneration and environment improvements. Projects include Wandsworth Gyrotory, Vauxhall Cross and Old Street Roundabout		32	-2	-10		20	45
NETWORKS PROGRAMME Projects and Programmes on the TLRN and Borough roads that support the delivery of Healthy Streets Outcomes including safety, urban realm and modal shift	Bus Priority	18	-2	-1		15	16
	TfL-led including: Programmes such as Safer Junctions, Healthy Streets Local Schemes, and Major Network projects such as Waggoners Roundabout	20	-4	-6		10	48
	Borough led including: Programmes such as Liveable Neighbourhoods , LIP Majors, LIP Corridors and Crossrail Complementary Measures	110	-1	-5		104	110
CYCLING PROGRAMME Programmes on the TLRN and Borough roads that support the delivery of Healthy Streets Outcomes including modal shift and safety	Cycle Superhighways including: Cycle Superhighway 4, Cycle Superhighway 9, Cycle Superhighway 10 and Cycling Future Routes	42	-3	-19		20	91
	Borough Cycling including: Central London GRID, Quietways and Mini Hollands	40		-1		39	38

STRATEGIC PROGRAMME Rotherhithe to Canary Wharf pedestrian and cycle crossing will provide a new strategic connection across the river in East London. High Speed 2 a planned high-speed railway linking London, Birmingham, the East Midlands, Leeds, Sheffield and Manchester (fully funded by third parties).	71	-52	-3		15	19
Gross Total excluding overlay	333	-63	-44	0	225	366
Value Engineering: Targeted efficiency savings	-12	12			0	-12
Over Programming: Allowance to reflect delivery risk assessments	-37		37		0	-64
Programme and Project Authority request total for 2019/20	284	-51	-7	0	225	291
Third party funding	-35	14	8		-11	-13
TfL funded Healthy Streets	249	-37	1	0	214	278

Appendix 3: Status of Healthy Streets Programme projects – 2018/19 Milestones

PACK – PERIOD 13

Portfolio PAM/BD Milestones 2018/19 (P13)

The chart below summarises the current (P13) and YTD status for 2018/19 Budget Deliverable (BD) and Programme Accountability (PAM) milestones for all projects and programmes sponsored by the Portfolio – 36 in total. Achievement of milestones against target is illustrated, including commentary on any changes and/or risks to achievement of future milestones.



Milestone commentary

- All milestone(s) due to complete this period were completed on or against their P13 target
- 34 out of 36 milestones were achieved this FY
- As previously reported the following two milestones were not met:
 - Surface Intelligent Technology Systems (COV IMS) – Contract Award PAM in P9
 - Lambeth North & South – Consultation Report Published PAM in P10

 =Milestones highlighted in red are delivered by the borough

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Appendix 4: Highbury Corner gyratory removal (case study)

A major transformation of Highbury Corner has taken place, with the removal of a 1960's gyratory system that was dominated by motor traffic and created an intimidating environment for vulnerable road users. Key features of the improvements are the introduction of a new public space and step change in urban realm, segregated cycle lanes, new and improved pedestrian crossings that cater for desire lines, and installation of Split Cycle and Offset Optimisation Technique (SCOOT) technology for more intelligent traffic signals.

The scheme is set to bring benefits to this major junction on the A1 corridor in Islington that strongly align with the aspirations of Healthy Streets. In addition to providing safer pedestrian and cycling facilities, the local environment will see improvements through the removal of the western arm of the gyratory to create the public space and connect the green space of the arboretum to the local area.

With the close proximity of Highbury and Islington station, there are wider interchange benefits delivered as part of the scheme, creating a welcoming place to meet people and spend time in, supported by a new streetscape including additional trees, seating. The enhanced urban realm and connectivity of the vibrant site is also expected to create an environment that feels safe from a personal security perspective.



Before



After

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Appendix 5: Hoe Street / Selborne Walk - Walthamstow gyratory removal (case study)

The Hoe Street / Selbourne Walk project is an example of effective collaboration internally and with borough colleagues, to deliver benefits across sub programmes that contributed to wider outcomes fully aligned to the Healthy Streets Approach. The purpose of this scheme was to remove a gyratory system to provide a simplified junction that included a new bus lane, segregated cycle lanes, pedestrian crossings and new public space.

In addition to making the junction safer, the changes have enabled TfL to relocate the route 357 and 97 bus stops from Walthamstow Bus Station onto the new road layout. Traffic modelling shows this change could bring savings of up to six minutes per bus in peak times for these routes.

The bus priority programme contributed £750k to the scheme, alongside other funding contributions from the Mini Holland Programme and the London Borough of Walthamstow. This helped to deliver improvements for a variety of road users, addressing significant problems at a location that was previously an intimidating environment particularly for pedestrians, cyclists and public transport users.

The scheme is expected to deliver an average journey time saving of 60 seconds for buses passing through the project area, which is used by 173 buses per hour across 16 routes. An initial assessment of actual journey times in the morning peak period shows a 6.5 minute saving for route 357 and a three minute saving for route 97.



Before



After

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Appendix 6: Example Benefits Realisation Reports (BRR's)

Extract from Cycle Superhighways BRR

Healthy Streets Portfolio Cycle Superhighways Programme

Project Benefit Update Report

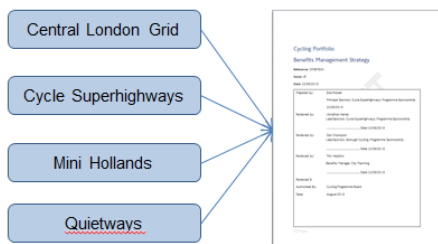
Healthy Streets Portfolio Board

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Cycle Superhighways – Benefits Update

All cycling schemes within Programme Sponsorship are covered by the Cycling Portfolio Benefits Management Strategy which was signed off at Cycling Programme Board in Summer 2018 .



As well as setting out the mechanisms for benefits realisation for each individual project in the Cycling Portfolio, this Strategy sets out which benefits are consistently measured at a programme level and can therefore be consistently reported on to Programme / Portfolio Board.

Customer surveys capture a large number of this data and so have enabled hypotheses to be tested.

Hypotheses

- Improved cyclist satisfaction
- Greater diversity of cyclists
- Improved cyclist confidence
- Improved cyclist perceptions of safety
- Improved public activity levels

- #### Reported KPIs
- Counts
 - Cyclist:
 - Satisfaction
 - Perception of safety
 - Diversity – race and gender
 - Pedestrian*:
 - Satisfaction
 - Perception of safety
 - KSIs

Programme level data capture has enabled consistent KPIs to be created, and a tracker to capture and report the information across all schemes.



*Methodology being developed

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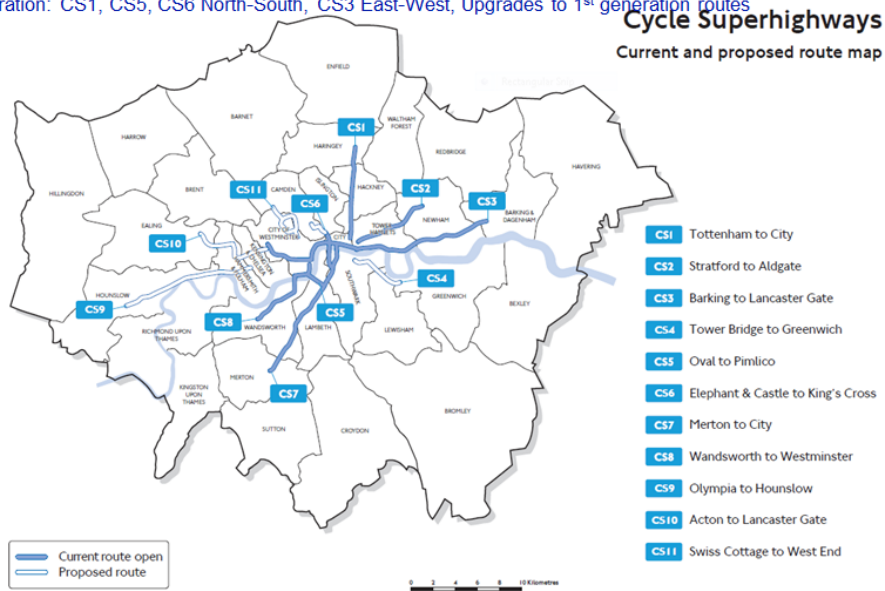
EVERY JOURNEY MATTERS

The Cycle Superhighways focus on providing protected space for cycling on some of London's busiest roads, opening these locations up for people cycling and joining together London's town centres, making them more connected and accessible.

To date eight routes have been launched:

1st Generation: CS2, CS3, CS7, CS8

2nd Generation: CS1, CS5, CS6 North-South, CS3 East-West, Upgrades to 1st generation routes



The Cycle Superhighways programme will continue to evolve and is subject to further change

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Cycle Superhighways – Hypotheses and Outcomes

High quality, segregated facilities for cyclists in London **now totals over 60km** from CS delivery alone. Together with other planned routes (inc CS4, CS9, CS10, CS11), a **further 60km of segregated facilities** along CS are now in the pipeline.

Since the inception of the Cycle Superhighways programme in 2008, our approach to providing cycling infrastructure on London's roads has evolved considerably; part of the remit of TfL's Cycling programme has been to learn lessons from our interventions, to understand what works, and what works best.

The CS Programme has tested a number of hypotheses. According to the results of the analysis the following hypotheses have been proven:

- Segregated CS lead to
 - improved cyclist satisfaction
 - improved cyclist confidence
 - Improved cyclist perceptions of safety
- Each of these has been proved to lead to increased cycling.

Input	Outcome	Impact	Test result
Investment in Cycle Superhighways	Improved satisfaction with route	Increase in cycling in London	Segregated: Proven Non-Segregated: Unproven
Investment in Cycle Superhighways	Improved the confidence of cyclists	Increase in cycling in London	Segregated: Proven Non-Segregated: Unproven
Investment in Cycle Superhighways	Improved the perception of safety	Increase in cycling in London	Segregated: Proven Non-Segregated: Unproven

Hypotheses proven

Investment in Cycle Superhighways	Improved the diversity of people cycling	Increase in cycling in London	Segregated: Unproven Non-Segregated: Unproven
Investment in Cycle Superhighways	Improved activity levels	Increase in cycling in London	Segregated: Unproven Non-Segregated: Unproven

Hypotheses not proven

Hypotheses not yet proven are that segregated CS lead to:

- a greater diversity in people cycling
- improved public activity levels

In both of these cases, improvements depend on changing behaviour of non-cyclists, and the benefits may emerge over time.



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11 Summary highlights

CS1

- 5,768 people were counted cycling at [Pitfield Street](#) in one day**
- There was a 107% increase in the number of people counted cycling at De Beauvoir Road in one day, compared to 2014**
- 78% of CS1 users responded that they felt safe for the most part or entire journey along the route*

CS2U

- 6,825 people were counted cycling at Whitechapel High Street in one day**
- There was a 53% increase in the number of people counted cycling at Whitechapel Road in one day, compared to 2014**
- 67% of CS2U users responded that they felt safe for the most part or entire journey along the route*

CS3 EW

- 10,329 people were counted cycling past Embankment Pier in one day**
- There was a 200% increase in the number of people counted cycling at Lower Thames Street in one day, compared to 2014**
- 84% of CS3 EW users responded that they felt safe for the most part or entire journey along the route*

CS5

- 6,136 people were counted cycling across Vauxhall Bridge in one day**
- There was a 40% increase in the number of people counted cycling at [Harleyford Road](#) in one day, compared to 2014**
- 86% of CS5 users responded that they felt safe for the most part or entire journey along the route*

CS6 NS

- 12,181 people were counted cycling at New Bridge Street in one day**
- There was a 124% increase in the number of people counted cycling at Blackfriars Road in one day, compared to 2014**
- 86% of CS6 NS users responded that they felt safe for the most part or entire journey along the route*



*of those respondents to the 2017 Spring Intercept survey

**on an average Autumn day in 2017

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EVERY JOURNEY MATTERS

Elephant & Castle BRR presented to Healthy Streets Portfolio Board:

Elephant and Castle

A transformative scheme delivered to enhance accessibility, encourage more cycling and walking (including increasing the number of pedestrian crossings from 3 to 5), deliver environmental improvements and continue the downward trend in casualties on the road network.

Start date	May 2014
End date	May 2015
Final cost	£15.1m

Benefit /measure	Business Case baseline	Business Case expectation	Post project measurement	Commentary
Reduction in Collisions	1 KSIs 17 Slight in Pedestrians and Cyclists 1 vulnerable road user (motorcyclist) injuries The baseline period used is the like for like months to the available post project period.	The total reduction over a three year period is expected to be 33%. Pro-rata for 9 months of data available since implementation, this would mean: 0 KSIs 11 Slight in Pedestrians & Cyclists 0 vulnerable road user injuries	Actuals, post implementation, over nine months: 2 KSIs 9 Slight in Pedestrians and Cyclists 0 vulnerable road user (motorcyclist) injuries	Only nine months of data is currently available (May 2016 to January 2017) and so a like for like period has been used in each case. Benefits were realised for slights, but not for KSIs. However, more detailed road safety analysis shows the KSIs were not as a result of the new scheme layout. Monitoring of the site will continue and further analysis will be carried out in May 2019.
More cycling	9,500 cyclists per day.	20% increase in cycling numbers to 11,400 cyclists per day.	15.46% increase in cyclists per day counted as of September 2017 (11,237 cyclists)	Benefit partially realised. An increase of 15.46% (against an expected increase of 20%) in cycling numbers around the Elephant and Castle gyratory area.
Reduction in Crime as a result of at-grade crossings and subway closures .	Average crimes per year from 2010-2012 within 100m of E&C roundabout was 86.	25% expected reduction in crime: expected instances of crime is 65.	Awaiting LB Southwark crime data to be able to measure crime reduction.	
Improvement in Urban Realm	PERS scores in 2013: Links RAG rating = green Links score = 32 Crossings RAG rating = red Crossings score = -7	Increase PERS scores by 20%. Links RAG rating = green Links score = 52 Crossings RAG rating = green Crossings score = 13	PERS scores in 2017: Links RAG rating = green Links score = 34 Crossings RAG rating = green Crossings score = 43	RAG ratings for the Links show a 18% improvement when compared to baseline and a 12% improvement when compared to 2016. Crossings show a 31-64% improvement overall when compared to baseline No changes between 2016 and 2017.
Bus Journey Time Dis-benefits	Average baseline Travel Time/Total flow across all movements = 248.9 seconds	Modelled increase in journey times for all vehicular modes by 23% i.e. 306.1 seconds	Bus journey times have increased overall by 10% to 275.5 seconds in comparison to the baseline.	The size of the disbenefit is significantly smaller than expected as a result of SCOOT implementation. Journey times are expected to improve further as major developments near completion.
Journey Time Dis-benefits	Average baseline Travel Time/Total flow across all movements = 217.2 seconds.	Modelled increase in journey times for all vehicular modes by 9% i.e. 236.7 seconds	General traffic journey times have decreased by 13% to 189.4 seconds in comparison to the baseline.	Disbenefit avoided as a result of SCOOT implementation.

Revised and corrected journey time data is currently being collected and validated for for buses and general traffic

The project improved accessibility in Elephant and Castle, reduced collisions and improved public realm contributing to the wider regeneration in the area. Public Realm improvements are not yet quantified because of ongoing LU station upgrade works.

Programmes and Investment Committee



Date: 17 July 2019

Item: London Underground Renewals and Enhancements Track Programme

This paper will be considered in public

1 Summary

- 1.1 This paper sets out a request for Programme and Project Authority for the London Underground (LU) Renewals and Enhancements (R&E) Track Programme (the Programme) for three years, spanning 2020/21 to 2022/23. This follows a prior submission to the Committee for authority for the 2018/19 to 2019/20 programme.
- 1.2 The focus of this paper is to:
- (a) present the Programme’s achievements since the last submission;
 - (b) summarise planned delivery in 2019/20;
 - (c) request Programme and Project Authority for three further year’s delivery and additional authority for 2019/20, and
 - (d) assure the Committee on the progress of the Programme.
- 1.3 In February 2018, the Committee approved Programme and Project Authority of £231.6m to deliver the Track Programme.
- 1.4 The financial status relating to the Programme is shown in table 1.
- 1.5 This paper requests approval for Programme and Project Authority of £420.3m. This comprises £402.0m for 2020/21 to 2022/23 and an additional £18.3m for 2019/20 increasing total Programme and Project Authority to £651.9m.

Table 1: Summary of the Programme and Project Authority

LU R&E Track Programme 2020/21 - 2022/23				
Existing Financial Authority	Estimated Final Cost (EFC)	Existing Programme and Project Authority	Additional Authority Requested	Programme and Project Authority 2020/21-2022/23
£651.9m	£641.3m	£231.6m	£420.3m	£651.9m

- 1.6 The Programme proposes to return annually to the Committee to review progress and re-validate the proposed investment.

2 Recommendations

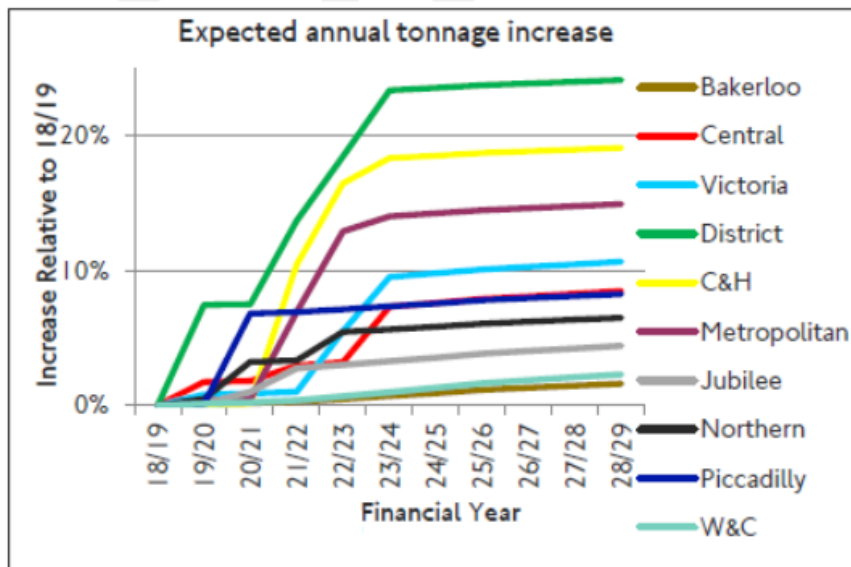
2.1 **The Committee is asked to note the paper and:**

- (a) approve additional Programme and Project Authority of £18.3m for the London Underground Renewals and Enhancements Track Programme for 2019/20; and**
- (b) approve additional Programme and Project Authority of £402m for 2020/21 to 2022/23, giving a total Programme and Project Authority of £651.9m.**

3 Background

- 3.1 Track assets consist of the trackform itself, track drainage and long timber bridges. Of the 1,047km of track, 83 per cent is for passenger routes and 17 per cent is in depots and sidings.
- 3.2 The Programme plays a vital role in maintaining day-to-day service levels and safety and supporting line upgrades, to meet the demands of intense train service patterns.
- 3.3 This Programme supports the strategic objectives in the Mayor's Transport Strategy of 'providing a good public transport experience' and over time, contributes to the 'improving public transport services' measure on the TfL Scorecard.
- 3.4 Future years will see an increase in the rate of wear to the Track asset due to forecast increases in passengers and services. Without that acceleration in wear being balanced by continued renewals, safety and reliability risks would increase. Annual traffic tonnage is forecast to increase significantly over the business plan period with more intensive timetables largely as a result of the Four Lines Modernisation Programme (4LM), so that the amount of wear will also increase, as shown in Figure 1.

Figure 1: Forecast Tonnage increases



- 3.5 Unlike most assets, Track does not fail safe. There is a direct correlation between reliability and safety risk. Rail breaks or other defects can cause derailments with severe safety consequences and disruption to passengers.
- 3.6 The Programme supports LU’s objective to improve safety, reliability and capacity by renewing assets at the end of their life, on a carefully prioritised basis to prevent deteriorating safety and reliability.
- 3.7 The authority being sought in this submission supports a continuous programme of renewals, to partially offset the ageing of the track asset-base, to offset increases in traffic tonnage and to further modernise the track asset.
- 3.8 A number of investment options were considered during business planning. The proposed approach represents the most affordable means of maintaining safety and reliability at current levels.
- 3.9 Some of the track in current service on the LU Network dates from the early 1900s. This is being replaced with a more modern, high integrity, longer life, lower maintenance trackform with predictable failure modes, providing a more stable and reliable asset base. Currently approximately 70 per cent of the LU network is comprised of modern track.
- 3.10 Many track maintenance activities have tonnage-based frequencies, so maintenance costs will naturally increase as tonnage increases. Upgrading to a more modern trackform helps to offset these cost increases through extended inspection intervals and lower corrective maintenance costs.

3.11 The provision of modernised track would help achieve some wider benefits in line with the LU Track Asset Strategy, as follows:

- (a) reduced safety risk;
- (b) improved reliability;
- (c) noise and vibration reduction; and
- (d) facilitates line upgrades and supports the introduction of new rolling stock.

3.12 The Track network comprises:

- (a) Plain-line track are the sections of track without any junctions;
- (b) Points & Crossings (P&C) are the junctions on the track network that enable trains to be routed to the correct locations; and
- (c) other assets including long timber bridges, track drainage and many other miscellaneous asset types.

4 Proposal: Programme Delivery in 2020/21 – 2022/23

4.1 **Affordability.** The The 2019/20 programme is budgeted in the current budget with future years being funded in the 2018 TfL Business Plan.

4.2 **Prioritisation.** A prioritised scope of work has been compiled from detailed workbanks. This indicates which assets should be renewed or replaced in a given year based on criticality, condition and a number of other factors such as line upgrades and timetable changes. Priorities within the track workbank will evolve through the authority period to take account of access opportunities and emerging condition concerns.

4.3 **Summary of proposed scope.** The renewal scope to be delivered with the requested authority is shown in Table 2.

Table 2: Proposed volumes for 2020/21 – 2022/23

Intervention		Volumes				Costs (£m, outturn)			
		20/21	21/22	22/23	Total	20/21	21/22	22/23	Total
Plain-line scope	Deep Tube Renewals (DTR) (Class 1) (m)	4009	4978	5095	14082	£29.3	£38.8	£41.4	£109.5
	Deep Tube Renewal (Class 2) (m)	250	-	-	250	£0.6	-	-	£0.6
	Ballasted Track Renewal (BTR) (m)	3129	3800	3721	10650	£13.8	£16.7	£16.8	£47.2
	Flat Bottomed Conversion (FBC) (m)	5700	5800	5850	17350	£9.3	£10.8	£11.5	£31.6
	Joint removal (units)	N/A	N/A	N/A	N/A	£0.6	£0.6	£0.6	£1.8
P&C scope	Points and Crossings (P&C) renewal (units)	22	18	25	65	£27.9	£34.1	£40.2	£102.2
	P&C heavy maintenance (units)	5	5	5	15	£1.4	£1.5	£1.6	£4.4
Other scope and Costs	Track drainage (m)	1725	2200	2500	6425	£4.5	£5.9	£7.1	£17.5
	Long timber bridges (units)	1	1	1	3	£0.6	£0.6	£0.6	£1.8
	Miscellaneous scope and management costs:	N/A	N/A	N/A	N/A	£30.0	£27.0	£28.2	£85.2
Total:		N/A	N/A	N/A	N/A	£118.0	£136.0	£148.0	£402.0

4.4 **Proposed Plain-line scope.** DTR and BTR volumes will remain broadly consistent throughout the three year authority. This represents the minimum level of renewal required to maintain the current level of safety and reliability across the network, in accordance with the Track Asset Strategy. Targeted FBC and joint removal will generate further benefit by helping to minimise the upward pressure on planned and corrective maintenance costs from tonnage increase, for minimal investment.

4.5 **Proposed P&C scope.** The new authority will have additional emphasis on increasing the level of P&C renewal. Historically, P&C renewals have often been de-prioritised, due to the complex nature of this work and the high requirement for disruptive access. This has resulted in increased reliability risk at critical junctions such as Edgware Road and Aldgate that were originally planned to be renewed sooner.

- 4.6 **Proposed drainage scope.** Investment in prioritised track drainage will remain at relatively consistent levels across the three year authority. This is essential to maximise asset life at renewal sites and also recover asset condition where there is a possibility of flood events impacting reliability.
- 4.7 **Risk.** A separate risk provision is not provided for. In the event of risks materialising, they will be funded initially through efficiencies or, where that is not possible, by de-prioritising less critical or urgent scope.
- 4.8 **Efficiencies.** Future efficiency savings have been incorporated into costings, equating to 3.6 per cent year-on-year saving. This level of efficiency is lower than some comparable programmes because the Programme does not have a separate risk provision; efficiencies are used to offset delivery risk in the first instance, only contributing to the efficiency target once all delivery risks are offset. Opportunities to achieve the efficiencies target are discussed in paragraph 8.2.

5 Programme Delivery during 2018/19

- 5.1 **Overview.** 93 per cent of the targeted renewals were delivered in 2018/19. Factors outside the Programme's direct control restricted delivery. A significant new commercial arrangement to deliver renewals was successfully launched.
- 5.2 **Spend.** Actual spend for 2018/19 was £112.3m versus £104.0m in the prior authority, reflecting the £8.3m of additional scope that was delivered in addition to the original target, to offset deferrals elsewhere in R&E.
- 5.3 **Delivery summary.** Table 3 shows a summary of the aggregate Programme delivery in 2018/19 versus the targets quoted at prior authority.

Table 3: 2018/19 Target Volumes v Actual Delivery

Intervention	Volumes	
	Target	Actual
BTR	4.6km	3.6km
B2F Slab	0.6km	1.2km
Drainage	1.0km	1.7km
P&C	6 units	6 units
DTR (Class1)	4.1km	3.8km
FBC	6.7km	7.8km

- 5.4 **BTR under delivery.** Renewals plans for 2018/19 were constrained by a delay in the refurbishment of wagons used for BTR. Furthermore, the Programme needs to balance its requirements with those required for the 4LM Programme. 4LM required more access than planned, reducing the access available to renew track. The result of these pressures was under-delivery of 1.5km of forecasted weekend BTR, with a value totalling £6.2m. The sunk costs incurred due to these changes totalled £1.5m.

- 5.5 **Recovery plan.** 1.7km of additional BTR was delivered at critical sites during the last quarter of 2018/19, using overnight working. A further 1.0km of DTR, FBC and drainage was also delivered. This additional scope partially mitigated both the BTR lost to wagon and 4LM issues and the scope deferrals elsewhere in R&E.
- 5.6 **Other delivery.** Delivery of other work-types was broadly in line with the plan including critical renewals of track in Ealing Common depot.

6 Delivery Plan for 2019/20

- 6.1 **Background.** 2019/20, is the first year of the Integrated Track Team, a strategic partnership between TfL and Balfour Beatty Rail Projects Limited (BBRPL). This was awarded in February 2019 to deliver track renewal worth £220m over four years on a cost reimbursable payment basis, with incentives aligned to the four LU priorities. The Integrated Track Team will predominantly deliver BTR and P&C renewals in open sections. Renewals in the deep-tube and in depots will continue to be delivered by the Track Delivery Unit, LU's internal delivery group.
- 6.2 **Spend.** Forecast spend for 2019/20 is £127.0m versus £127.6m at the time of the prior authority. The business planning round in 2018 emphasised the continued need to invest in track renewal to maintain safety and reliability, so capex for 2019/20 remained unaltered. Track continues to be seen as a priority for accelerating renewals if further budget becomes available from elsewhere within R&E.
- 6.3 **Delivery summary.** Table 4 shows a summary of the Programme delivery in 2019/20 versus the targets quoted at the time of the prior authority.

Table 4: Target Volumes v Forecast at the start of 2019/20

Intervention	Volumes	
	Target	Forecast
BTR	5.6km	6.3km
B2F Slab	0m	0.4km
Drainage	6.0km	2.9km
P&C	19 units	20 units
DTR (Class1)	3.9km	4.2km
FBC	3.5km	7.7km

- 6.4 **Deferral of P&C renewal.** During business planning in 2018 it was decided that planned P&C renewals at Aldgate and Wimbledon in early 2019/20 should be deferred. The risk of undertaking these challenging works with an as-yet-unknown and unproven delivery partner was considered disproportionately risky, both in terms of safety and the potential for closure over-runs. The work was re-phased into future years, reducing the planned P&C renewal volume in 2019/20 from 27 to nine units, with a further 11 units of heavy maintenance.

6.5 **Other planned renewal.** The Integrated Track Team will utilise 27 weekend closures during 2019/20. DTR will remain at a similar level to 2018/19. The plan also includes third-party funded work at Earls Court to West Brompton, effectively renewing a poor-condition asset at no cost to TfL. FBC will continue, with more emphasis on the Northern line, where there has historically been a proportionately high number of rail breaks in recent years. Essential depot work is also planned.

7 Financial Implications

7.1 **Authority.** The authority for the Programme for 2018/19 - 2019/20 is shown in Table 5.

Table 5: R&E Track 2018/19 – 2019/20

Authority (£m)	2018/19	2019/20	Total
Existing Programme and Project Authority	104.0	127.6	231.6
This authority request	8.3	10.0	18.3
Future authority requests	0.0	0.0	0.0
Financial Authority (Business Plan) 18/19 to 22/23	104.0	127.6	231.6
Programme EFC 18/19 to 22/23	112.3	127.0	239.3

7.2 **Opportunity spend.** An additional £8.3m was invested in track in 2018/19 helping to offset deferrals elsewhere in R&E. This triggered the need for additional Programme and Project Authority for the Programme. A further £10.0m of additional authority is requested for 2019/20. The Programme has the capacity to accelerate further high priority scope, to mitigate against any scope deferrals elsewhere in R&E in 2019/20 if required, but this requires Programme and Project Authority.

7.3 **Proposed authority.** The authority for the Programme for future years is shown in Table 6.

Table 6: R&E Track 2020/21 – 2022/23

Authority (£m)	2020/21	2021/22	2022/23	Total
Existing Programme and Project Authority	0.0	0.0	0.0	0.0
This authority request	118.0	136.0	148.0	402.0
Future authority requests	0.0	0.0	0.0	0.0
Financial Authority (Business Plan) 18/19 to 22/23	118.0	136.0	148.0	402.0
Programme EFC 18/19 to 22/23	118.0	136.0	148.0	402.0

8 Challenges, Opportunities and Lessons Learnt

8.1 **Challenges.** The key challenges facing the Programme include:

- (a) **Planning stability.** Late changes to plans can prove to be costly, and often result in reduced delivery and higher unit rates. Through intensive planning and close engagement with other programmes, a more stable and assured future Programme will be able to more robustly resist change.
- (b) **TransPlant.** TransPlant is the internal provider of LU engineering vehicles. TransPlant under-utilisation costs are currently allocated wholly to the Programme. Any lack of utilisation of TransPlant resources therefore constitutes a risk that can only be met by varying track renewal scope. This policy is currently under review.
- (c) **Engineering vehicles.** The Programme has a dependency on the R&E Engineering Vehicle Programme. If vehicles are not available when they are required to support track renewal, due to maintenance or upgrade, successful delivery is often jeopardised. Organisation change has brought about greater alignment and closer planning between these two programmes.
- (d) **4LM.** The upcoming 4LM signalling migration stages represent a further risk, which will require balancing the closures required for that Programme with those required for track renewals.

8.2 **Opportunities.** The key opportunities available to the Programme include:

- (a) **Access planning.** Planning and delivering multiple scope or sites within a single closure increases efficiency. Although disruptive, longer/larger closures can also improve cost efficiency, especially in areas of the network where access has been problematic. For example, in April 2019 a closure on the District line was utilised by multiple projects at 10 different sites, including renewals of track and track drainage, civils surveying, signalling works, track heavy maintenance and rail grinding. When planning renewals, careful consideration is taken to maximise closure synergies across all delivery Programmes and assets.

- (b) **Planning flexibility.** Current track labour contracts provide resource that can be flexed at short notice. This flexibility means that resource is not wasted when plans change, but labour suppliers build a price for that flexibility into their rates. Further efficiencies can be made if LU can plan longer-term, demand a more consistent level of resource and communicate its requirements more clearly. This will require change from all the programmes and functions that currently impact upon track planning
- (c) **Innovation.** A number of innovations are planned to improve efficiency including a reduction in the depth of dig at selected BTR sites, the design a Mechanised Renewal Vehicle to increase staff safety and reduce cost and further efficiencies that BBRPL will progress under their contract.
- (d) **Asset information.** A plan of asset management maturity improvements is in place. This will focus during 2019/20 on the provision of better information to inform renewals prioritisation, enabling the optimum work to be selected for inclusion in the plan, boosting the effectiveness of the proposed investment
- (e) **Longer term opportunities.** The arrangements for procuring and utilising suppliers effectively across the lifecycle of track renewals and maintenance are being investigated. These may yield future savings, but such changes would be more transformational and would require commitment of workload to the supply-chain.

8.3 **Lessons Learnt.** The Integrated Assurance Review (IAR) at the time of the prior authority produced a series of recommendations to improve the effectiveness of the Programme. All seven of the previous actions have been closed out. These are documented in detail in the Management Response to the Assurance Reports

9 Assurance

Progress on IAR recommendations

- 9.1 TfL Project Assurance and an External Expert (EE) undertook an assurance review of the Programme in May 2019, where no critical issues were identified.
- 9.2 A number of recommendations were made in the TfL Programme Assurance and EE reviews, which have been addressed as detailed in the management response.
- 9.3 An Integrated Assurance Plan for the Programme has been agreed with TfL Project Assurance for the following 12 months including the project-level reviews that will take place over the course of the year.

List of appendices to this report:

None

List of background papers:

TfL Assurance Reports

Management response to IIPAG and TfL Assurance Reports

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Programmes and Investment Committee



Date: 17 July 2019

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 plan. Members are also invited to suggest items for the Committee's induction session and 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 Plan Development

- 3.1 The Board and its Committees and Panels have forward plans. The content of the plans arise from a number of sources:
- (a) Standing items for each meeting: Minutes; Matters Arising and Actions List; and any regular quarterly reports. For this Committee these are the quarterly Investment Programme Report, the regular Project Monitoring 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 plan and may suggest items. Other items will arise out of actions from previous meetings (including meetings of the Board or other Committees and Panels) and any issues suggested under this agenda item.

4 Current Plan

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

List of appendices to this report:

Appendix 1 – Programmes and Investment Committee Forward Plan

List of Background Papers:

None

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Programmes and Investment Committee Forward Planner 2019/20

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)

23 October 2019		
Use of Delegated Authority	General Counsel	Standing item
Quarterly Programmes and Investment Report	MD LU, 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.
Second line Assurance Activities	Project Assurance	Standing item
IIPAG Quarterly Report	Project Assurance	Standing Item
Crossrail Update	MD LU	Regular update on progress
LU Stations	MD LU	Annual approval
LU Lifts & Escalators	MD LU	Annual approval
Four Lines Modernisation	MD LU	Approval
World Class Capacity Programme	MD LU	Approval
Fiveways Croydon	MD ST	Approval
Growth Fund	D City Planning	To note

Programmes and Investment Committee Forward Planner 2019/20

18 December 2019		
Use of Delegated Authority	General Counsel	Standing item
Quarterly Programmes and Investment Report	MD LU, 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.
Second line Assurance Activities	Project Assurance	Standing item
IIPAG Quarterly Report	Project Assurance	Standing Item
Air Quality and Environment	MD ST	Annual approval
Public Transport	MD ST	Annual approval
Asset Programme	MD ST	Annual approval
Barking Riverside Extension	MD ST	To note
Piccadilly line upgrade and signalling	MD LU	Approval
Northern Line Extension	MD LU	To note
Power, Cooling & Energy	MD LU	Annual Approval
Crossrail Update	MD LU	Regular update on progress

Programmes and Investment Committee Forward Planner 2019/20

5 March 2020		
Use of Delegated Authority	General Counsel	Standing item
Quarterly Programmes and Investment Report	MD LU, 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.
Second line Assurance Activities	Project Assurance	Standing item
IIPAG Quarterly Report	Project Assurance	Standing Item
LU Major Stations (HS2)	MD LU	Approval
Rolling Stock Renewals	MD LU	Annual approval
LU Signals and Control	MD LU	Annual Approval
Crossrail Update	MD LU	Regular update on progress

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).
- Crossrail updates

Items to be scheduled:

- London Overground future planning
- Bakerloo line extension (City Planning and LU)

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