

## Meeting: Programmes and Investment Committee

**Date:** Tuesday 11 December 2018

**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  
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](http://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](mailto:JamieMordue@tfl.gov.uk).

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

Howard Carter, General Counsel  
Monday 3 December 2018

**Agenda  
Programmes and Investment Committee  
Tuesday 11 December 2018**

**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 11 October 2018  
(Pages 1 - 12)**

General Counsel

**The Committee is asked to approve the minutes of the meeting of the Committee held on 11 October 2018 and authorise the Chair to sign them.**

**4 Matters Arising and Actions List (Pages 13 - 26)**

General Counsel

**The Committee is asked to note the updated actions list.**

**5 Investment Programme Report - Quarter 2, 2018/19 (Pages 27 - 116)**

Director Major Projects and Managing Directors London Underground and Surface Transport

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

**6 Independent Investment Programme Advisory Group - Quarterly Report** (Pages 117 - 126)

General Counsel

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

**7 Use of Delegated Authority** (Pages 127 - 136)

General Counsel

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

**8 Strategic Risk Update - SR12** (Pages 137 - 138)

Director Major Projects

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

**9 Air Quality and Environment Programme** (Pages 139 - 164)

Managing Director Surface Transport

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

**10 Public Transport Programme 2019/20** (Pages 165 - 192)

Managing Director Surface Transport

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

**11 DLR Rolling Stock Replacement Programme** (Pages 193 - 204)

Managing Director Surface Transport

**The Committee is asked to note the paper and the supplementary information on Part 2 of the agenda and approve additional Programme and Project Authority and approve Procurement Authority.**

**12 London Underground Track Delivery Partner Contract** (Pages 205 - 206)

Manning Director London Underground

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

**13 London Underground Northern Line Extension** (Pages 207 - 214)

Manning Director London Underground

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

**14 Crossrail Update** (Pages 215 - 216)

Operations Director Crossrail/Elizabeth line and Director of Strategy and Network Development

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

**15 Member suggestions for future agenda discussions** (Pages 217 - 220)

**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 6 March 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 Strategic Risk Update - SR12** (Pages 221 - 242)

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

**20 DLR Rolling Stock Replacement Programme** (Pages 243 - 264)

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

**21 London Underground Track Delivery Partner Contract** (Pages 265 - 268)

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

**22 London Underground Northern Line Extension** (Pages 269 - 276)

**Exempt supplementary 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 Rooms 1 and 2, Palestra,  
197 Blackfriars Road, London, SE1 8NJ  
10.15am, Thursday 11 October 2018**

#### **Members Present**

Professor Greg Clark CBE (Chair)  
Dr Nelson Ogunshakin OBE (Vice-Chair) (by telephone)  
Heidi Alexander  
Ron Kalifa OBE  
Dr Alice Maynard CBE  
Dr Nina Skorupska CBE  
Dr Lynn Sloman  
Ben Story

#### **In Attendance**

##### **Executive Committee**

Howard Carter	General Counsel
Stuart Harvey	Director of Major Projects
Simon Kilonback	Chief Finance Officer
Shashi Verma	Director of Strategy and Chief Technology Officer (from minute 62/10/18)

##### **Other Staff**

Sue Barrett	Head of Commercial – Capital Delivery Construction (for minute 58/10/18)
Alexandra Batey	Head of Public Transport Sponsorship, Surface Transport (for minute 57/10/18)
Michael Bridgeland	Head of Project Assurance, General Counsel
Claudina Castelli	Senior Risk Manager, General Counsel (for minute 56/10/18)
Patrick Doig	Finance Director, Surface Transport
Jonathan Fox	Director of Rail and Sponsored Services (for minute 57/10/18)
Rob Niven	Head of Major Projects Sponsorship, London Underground
Ben Plowden	Director of Project & Programme Sponsorship, Surface Transport
David Rowe	Head of Major Projects Sponsorship, Surface Transport
Lee Rudderham	Lead Commercial Manager, Rail Operations (for minute 61/10/18)
Gary Sterritt	Head of Asset Investment, Surface Transport (for minute 59/10/18)
Allan Thomson	Head of LU Enhancements
Clive Walker	Director of Risk and Assurance, General Counsel
David Wylie	Chief Procurement Officer
Jamie Mordue	Secretariat

##### **Independent Investment Programme Advisory Group (IIPAG) Attendance**

Alison Munro	Chair, IIPAG
Colin Porter	IIPAG Member
Paul Jenkins	IIPAG Member

## **49/10/18 Apologies for Absence and Chair's Announcements**

All members of the Committee were present. Apologies for absence were received from Mike Brown MVO, Commissioner, Gareth Powell, Managing Director Surface Transport, Mark Wild, Managing Director London Underground, and David Hughes, Director of Strategy & Network Development London Underground.

The Chair welcomed Alison Munro, the new Chair of the Independent Investment Programme Advisory Group (IIPAG), to her first meeting of the Committee since taking up the role. On behalf of the Committee, the Chair thanked Colin Porter for his recent leadership of IIPAG and thanked all outgoing members of IIPAG for providing a valuable third line of assurance to the Committee.

## **50/10/18 Declarations of Interests**

Members confirmed that their declarations of interests, as published on [tfl.gov.uk](http://tfl.gov.uk), were up to date.

## **51/10/18 Minutes of the meeting of the Committee held on 3 July 2018**

**The minutes of the meeting held on 3 July 2018 were approved as a correct record and signed by the Chair.**

## **52/10/18 Matters Arising and Actions List**

Howard Carter introduced the paper. The Committee thanked TfL staff for the organisation of visits to the Bank Station Capacity Upgrade project, in July and September 2018.

**The Committee noted the actions list.**

## **53/10/18 Investment Programme Report – Quarter 1 2018/19**

Stuart Harvey introduced the paper, which summarised progress against the Investment Programme in Quarter 1 2018/19. There were fewer injuries for both directly employed TfL employees and suppliers' employees, compared to the same quarter last year. There were two high potential incidents in the quarter, from which no injuries occurred. Investigations were being carried out and safety critical communications remained a high priority for Directors.

Stuart Harvey provided an update on Major Projects. The twin-tunnelled extension from Kennington to a new terminus at Battersea Power Station, via a new station at Nine Elms, was green against its 2018/19 milestone. The first engineering train had entered the tunnels and had begun laying the running track.

The Barking Riverside Extension project was amber against its 2018/19 budget milestones as it had become clear that there were cost pressures to the scheme



delivery. A paper on the Barking Riverside Extension was discussed later on the agenda (Minute 57/10/18).

The Victoria Station Upgrade project was green against its 2018/19 budget milestone. The project would build a new north ticket hall, expand the south ticket hall by 50 per cent and provide step-free access to all platforms. TfL expected to open all customer facilities and complete the project by the end of 2018. The project was expected to be completed on time and within budget.

Ben Plowden provided an update on Surface Transport projects. Since the last meeting of the Committee, Cycle Superhighway 6 (North-South) extension had opened and Quietway 2 had been officially opened by the Mayor's Walking and Cycling Commissioner, Will Norman. The Committee heard that Cycle Superhighway 11 (CS11) had been legally challenged by Westminster City Council over plans for the Swiss Cottage gyratory. TfL were looking at how best to respond to ensure the delivery of CS11 but delays to the project were expected.

The Committee noted that work was progressing on the Air Quality and Environment Programme; high level and functional designs for the Ultra Low Emission Zone (ULEZ) had been completed and the detailed design was almost complete. In Quarter 1, TfL awarded two double-deck routes with ULEZ compliant buses, to bring 65 buses into service in 2019.

The Asset Investment Programme was green against its 2018/19 budget milestone. Work had been completed on the second of three phases of the demolition of the existing Ardleigh Green Road Bridge and the second half of the new bridge was being built ahead of its installation in 2018. All four lanes were planned to open in spring 2019. Work was ongoing on new carriageway approaches at Power Road and remained on schedule to open to four lanes of traffic in late 2018.

Rob Niven provided an update on London Underground projects. The Stations Programme was green against its 2018/19 budget milestones. Civils works at Finsbury Park station had been completed, including two new lift shafts, two restructured staircases and a new passageway, which linked the existing station to a future western entrance.

At Elephant and Castle station, the developer had put in an application for new housing, retail space and a station box to expand access and enlarge capacity. TfL was developing the documents needed to engage with the developer, subject to the London Borough of Southwark's decision on the application.

The Committee heard that TfL was planning to build a new entrance, improve the size of the ticket hall and provide step-free access to Bakerloo line platforms at Paddington station. This work was planned to be undertaken in partnership with Great Western Development, which had been granted planning permission for an adjacent building.

The Accessibility Programme was amber against its 2018/19 budget milestone. Works were continuing at Newbury Park station to install the lift tower, which was expected to be in place in mid-October 2018. TfL were aiming to deliver step-free access in October 2018 but this would depend on the installation of the lift tower.

The Track Renewals Programme was green against its 2018/19 budget milestone. At Camden Town station, four sets of deep Tube points had been renewed, including 100 metres of new track layout and removal of 200 tonnes of concrete spoil.

The Rolling Stock Renewals Programme was green against its 2018/19 budget milestone. On the Central Line Improvement Programme, the new tractions package contract was progressing to plan, the passenger information system contract for the Central line fleet was in place and tender responses were being evaluated for flooring and LED lighting.

The Committee asked what the legal implications of the challenge to the award of the contract to design and build new Piccadilly line trains were and when progress was expected to be made. Howard Carter told the Committee that the contract award decision was suspended owing to the legal challenge and that an automatic stay was in place. TfL had submitted an application to lift the stay and a decision was expected in two to three weeks.

Members asked for further information about how TfL evaluated the work being carried out on safer junctions and liveable neighbourhoods. The Committee was told that a rigorous process of review was required, over a period of three years, to monitor whether the work carried out to improve the safety of junctions had the intended consequences. The second round of bidding for Liveable Neighbourhoods funding was underway and Boroughs that received funding would be required to state how much better the streets would be and, by condition of receiving funding, to conduct strong monitoring of the schemes.

The Committee asked how TfL benchmarked the accessibility of its network and how it performed globally, in terms of accessibility. TfL is a member of Community of Metros (CoMET), which allowed for benchmarking against the public transport systems of other major cities. Twenty-seven per cent of the London Underground network is accessible and London's ranking was improving as legacy issues were overcome. TfL would make available the list of accessible stations and look to make it more visible on its website and elsewhere. **[Action: Allan Thomson]**

Members asked what considerations TfL had made regarding additional funding sources for surface assets, given the removal of the government grant. TfL would continue to lobby Government and apply for grants where schemes met eligibility for funding. The House of Commons Transport Select Committee was conducting an inquiry into local roads funding, to which TfL would submit its concerns over funding. A paper on Surface Transport Assets Renewals was discussed later on the agenda (Minute 59/10/18).

**The Committee noted the paper.**

## **54/10/18 Independent Investment Programme Advisory Group – Quarterly Report**

Michael Bridgeland introduced the paper, which provided the quarterly report from the Independent Investment Programme Advisory Group (IIPAG) and TfL management responses to the main issues raised.

Alison Munro told the Committee that she was delighted to take up her position as Chair of IIPAG and would look at how IIPAG could add the most value in the future. Colin Porter asked the Committee whether it was satisfied with the level of detail provided in IIPAG reports, to which the Committee said that it was, and he drew the Committee's attention to outstanding management responses to IIPAG's recommendations.

Michael Bridgeland told the Committee that sub-programme reviews were backed up by Independent Assurance Reports (IARs), which were updated every quarter and agreed on by IIPAG and TfL. Two new portfolio managers were now in post. This would improve the tracking and effectiveness of responses to recommendations from IIPAG. Further to this, guidance had been made more explicit to ensure that the management response either gave an "agree" or "disagree" response to an IIPAG recommendation. This would ensure clarity and consistency of language and remove uncertainty about whether a recommendation had been agreed or not. Colin Porter told the Committee that IIPAG had only begun to track the follow up to recommendations in the last six months and recognised that recommendations were not necessarily worded to facilitate an "agree" or "disagree" response; work was ongoing to address this.

Members stated that potential tightening of costs and deadlines in the coming years would mean that assurance would become even more important; IIPAG was an important part of providing that assurance and TfL Assurance and IIPAG needed to work closely together to manage the big risks and the smaller contributory risks.

Members asked whether IIPAG would be providing advice on internal TfL technology improvements, in addition to external projects. The Committee was told that assurance would cover overall technology and communications provision within TfL and this would include some IT projects. Internal capacity, with a focus on technology, would be an item on the agenda of a future Committee meeting.

The Committee questioned why a number of IIPAG recommendations had not been given a TfL management response. Michael Bridgeland told the Committee that, although figure 1 in the report showed a decrease in the number of closed recommendations, current tracking showed that this figure had improved. It was agreed that an updated report would be provided to the Committee before its next meeting.

**[Action: Michael Bridgeland]**

**The Committee noted the report.**

## **55/10/18 Use of Delegated Authority**

Howard Carter introduced the paper, which set out details of the use of delegated authority by the Commissioner and the Chief Finance Officer. Since the meeting of the Committee on 3 July 2018, there had been no uses of delegated authority.

**The Committee noted the paper.**

## **56/10/18 Strategic Risk Management Update**

Clive Walker introduced the paper and related supplemental information on Part 2 of the agenda, which set out details of TfL's new Enterprise Risk Management Framework (ERMF) and the Enterprise Risk Assessment Matrix (ERAM). It was agreed at the September 2018 meeting of the Board that strategic risks would be allocated to Committees and Panels, following a programme of deep dive reviews of TfL's strategic risks and Executive Committee approval of the final version of the ERMF and ERAM in August 2018. The Committee was taken through the templates, as set out in appendices 1-3. The Committee would receive strategic risk reports for SR12 – Delivery of key investment programmes and SR16 – Opening of the Elizabeth line.

Members stated that the deep dives were an important part of managing risks, enabling TfL to anticipate potential risks, run simulations and to cascade essential communications to minimise the risk.

The Committee asked what the relationship between ownership of risks was to the remuneration and reward the owner would receive. Simon Kilonback told the Committee that the work on strategic risks would become more synthesised with the Scorecard and that remuneration was linked to performance against the Scorecard.

Members welcomed the introduction of the ERMF and ERAM, and congratulated Officers on the progress that had been made.

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

## **57/10/18 Barking Riverside Extension Main Contract Works Update**

Jonathan Fox introduced the paper and related supplemental information on Part 2 of the agenda. Since the Committee's meeting in May 2018, there had been cost pressures to the scheme delivery, which could impact the overall programme of works. Since receipt of the initial bids, there had been intensive scope and value engineering discussions with key stakeholders to contain cost and programme pressures.

The Barking Riverside Extension was the largest brownfield development site in east London, with planning permission for 10,800 homes, and was referenced throughout

the Mayor's Transport Strategy. The Barking Riverside Extension development was in line with the Mayor's Healthy Streets approach.

Members were told that an increase in Programme and Project Authority was being sought because an extended negotiation phase had been conducted with bidders for the Main Works Contract and this would allow for the contract to be awarded before the Committee's next meeting in December 2018. Officers told the Committee that the extended negotiation phase was required owing to the collapse of Carillion plc changing the bidding process and the design of the scheme not being fully matured at the time of tender. Approval before December 2018 would ensure the Programme milestone target dates were met.

There was no formal recourse available against the design team, however the design team was involved in separate projects with TfL and would want to ensure that TfL maintained confidence in them. To that end, the design team was engaged with TfL to help minimise further costs on the Barking Riverside Extension project.

The Committee noted that the budget of the project had previously been reduced because risks, which had been identified during the risk analysis, did not crystallise.

Members discussed the level of cost and funding allocated to risk in the project and recommended that this be reviewed and increased if appropriate.

#### **The Committee:**

- 1 noted the paper and the supplementary information on Part 2 of the agenda; and**
- 2 subject to Financial Authority being in place, delegated to Delegated Officers authority to approve an increase in Programme and Project Authority, and Procurement Authority to enable the award of the main works contract for Barking Riverside rail extension and new Barking Riverside station up to the maximum sum stated in the paper on Part 2 of the agenda.**

### **58/10/18 Tottenham Court Road Station Additional Procurement Authority**

David Wylie introduced the paper and related supplemental information on Part 2 of the agenda, which sought an increase in Procurement Authority to allow the Tottenham Court Road Upgrade (TCRSU) main works contract with Taylor Woodrow Bam Nuttal JV to be settled.

The additional Procurement Authority would resolve charges related to: asbestos removal; cladding to platforms; Night Tube; indexation and takeover access. The completed TCRSU project was fulfilling its key objective of reducing congestion and the project had won awards for its design and innovative construction.

The Committee noted that TCRSU had existing Programme and Project Authority of £538m and that the Estimated Final Cost for the project was £478m. The project was being delivered for £60m less than the approved Programme and Project Authority; the request for an increase in Procurement Authority would not result in an increase in Programme and Project Authority.

**The Committee:**

- 1 noted the paper and supplementary information on Part 2 of the agenda; and**
- 2 approved additional Procurement Authority for the Tottenham Court Road Upgrade Project, following the final account agreement with the Main Contractor Taylor Woodrow BAM Nuttall JV for the sum set out in the Part 2 paper.**

### **59/10/18 Surface Transport Asset Renewals Programme**

Gary Sterritt introduced the paper, which sought a decrease in Programme and Project Authority of £49m for the Surface Transport Asset Renewals Programme. The Programme had previously been supported by the revenue grant that TfL received from Government, which ceased in 2017/18. The removal of the grant had placed short term pressures on the Programme until a long-term solution could be identified. It was noted that the Programme was not underperforming; a reduction in Programme and Project Authority would allow for a rebasing and more accurate monitoring of performance.

A distinction was drawn between asset maintenance and asset renewal. Asset maintenance was operational expenditure to keep existing assets in good working order and condition. Asset renewal was capital expenditure to lengthen the life of an asset, either by replacement, reconstruction or refurbishment.

The decrease in Programme and Project Authority was consistent with the two-year pro-active renewals freeze, including the deferral of major proactive renewals such as the Vauxhall Bridge and the Westway; the strategy would help to ensure operational funding would always be available to repair defects and maintain safety. TfL's approach to surface assets would be reactive, rather than proactive, which was an approach taken by many local authorities. Officers were confident that TfL would be able to maintain the network, while acknowledging that the change in approach would result in the state of good repair (SOGR) of some assets declining. Concerns about the safety or state of repair of assets would be dealt with on a case by case basis and the condition of assets would be monitored on a yearly basis.

It was recognised that there were risks from changing to a reactive approach to asset management, but there were a number of factors that could impact upon whether a risk crystallised. It was noted that Table 3.1 of the paper was the beginning of a strategic approach to understanding the risk, namely the impact to assets and how they related to the Mayor's Transport Strategy. The Committee requested that the IIPAG recommendation regarding the strategic objectives that the surface assets were to deliver be set out by December 2018 and be shared with the Committee.

**[Action: Gary Sterritt]**

Officers stated that the safety of the asset users was of paramount importance and decisions would be taken in accordance with this principle, for example street lighting had only been removed in areas where there were no public footpaths. The next business planning round would ensure that money for investment in surface assets would be allocated to ensuring safety of assets, before the funding of new Programmes.

Members asked why assets that were categorised as 'poor' or 'very poor' SOGR would be considered for renewal within the next one to three-year period and stated that TfL needed to be conscious of any disconnect between the public and TfL's evaluation of whether an asset was in SOGR. The Committee noted that a categorisation of 'poor' or 'very poor' was taken over the whole life of the asset and not necessarily from the point from which it was categorised. There was a pan-TfL conversation about what it was like to use the network so that Officers could explain differences between customer satisfaction and TfL's evaluation of conditions of assets.

The Committee asked whether the materials being used in asset maintenance and renewals were the most durable. TfL conducted research and trials with third parties to ensure that the materials used were the most durable; this was an area that Officers were active in and were monitoring the durability of the materials used.

Members asked how data on customer satisfaction was collected, given that the London Boroughs were responsible for 98 per cent of London's roads. The Committee noted that those who responded to surveys were reminded before and throughout the survey to consider only the red routes, but Officers acknowledged that some of those responding to surveys may not have strong knowledge of which authority was responsible for certain roads.

**The Committee noted the paper and:**

- 1 noted that budgeted Programme and Project Authority of £352m existed for delivery of the Surface Assets Programme as detailed in the paper for financial years 2017/18, 2018/19 and 2019/20;**
- 2 approved a reduction of the existing Programme and Project Authority by £49m to a total of £303m, comprising £169m in 2017/18, £70m in 2018/19 and £64m in 2019/20; and**
- 3 noted that Procurement Authority in respect of the various elements of the Surface Assets Programme would be sought at officer level in accordance with Standing Orders.**

## **60/10/18 London Underground Four Lines Modernisation Programme**

Rob Niven introduced the paper and related supplemental information on Part 2 of the agenda, which provided an update to the Committee on the progress of the delivery of the London Underground Four Lines Modernisation Programme.

The Programme was in the process of replacing, modernising and integrating life-expired assets, such as signalling, rolling stock and track, on the Sub-surface Railway, which would amount to the largest single upgrade in the history of the network.

The Committee noted that the introduction of 192 new trains had delivered 25 per cent of the Programme benefits, including: a step up in capacity while maintaining current train service; improvements to customer experience; and the opportunity to recover energy through regenerative braking. New signalling would deliver 75 per cent of the Programme benefits, including: the ability to run trains closer together, therefore increasing frequency; and increasing the speed of trains, which would reduce journey times.

Progress had been made in a number of areas over the last year: track layout changes had been completed in 23 out of 29 areas, which had allowed trains to run faster and had delivered maintenance cost savings; 96 per cent of nosing stone moves, to reduce the gap between the train and the platform, had been completed and nosing stone moves at the three remaining stations, Sloane Square, South Kensington and East Putney, were scheduled for completion in November 2018; changes to the Ealing Common depot and track, in order to accommodate new trains, had begun and was scheduled for completion in early 2019; and service control teams had been brought together at the Hammersmith service control centre.

The Programme was currently on track to deliver an initial 30 trains per hour service, during peak hours, on the south side of the central Circle line by 2020, which would increase to 32 trains per hour by 2022.

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

## **61/10/18 London Underground Track Partnership Programme**

David Wylie introduced the paper and related supplemental information on Part 2 of the agenda, which sought approval for an extension of the existing Track Partnership Contract with Balfour Beatty for a limited period of time, pending completion of the current procurement process.

The Committee noted that the Track Partnership contract was signed in December 2010 and expired in December 2018. London Underground expected to award the replacement delivery partner contract in early 2019.

**The Committee noted the paper and the supplementary information on Part 2 of the agenda and approved an extension to the existing Track Partnership Contract with Balfour Beatty for programme of track renewal services (including design, planning and construction) as set out in the supplementary paper on Part 2 of the agenda.**



## **62/10/18 Emergency Services Network**

Shashi Verma introduced the paper and related supplemental information on Part 2 of the agenda, which set out an update on the Home Office funded Emergency Services Network (ESN) project and requested approval for a change in delivery approach.

The Committee noted that TfL was required to host 4G infrastructure in its below ground estate for the ESN, which amounted to 422km of tunnels. Phase 1 of the project began in November 2017 and TfL had since installed 173km of fibre optic cable and temporarily installed leaky feeders in 251km of in-scope tunnels. Cabling works at the first 25 stations was 70 per cent complete. The British Transport Police were able to make the first 4G calls on a platform and within a train in May 2018, as a result of the continued trial of the design.

In November 2017, the Home Office announced that the Emergency Services Mobile Communications Programme (ESMCP) would be delayed and began a review of the programme. The Home Office agreed to TfL's recommendation to reduce the pace of Phase 1 delivery to December 2018.

The Committee heard that the Home Office had asked TfL whether a further increment of enabling installation work could be added to the current Phase 1 scope so that delivery activities could be maintained until the Home Office could commit to the whole life project costs. TfL considered the most appropriate scope for an extension to the Phase 1 scope to be the delivery of additional cabling infrastructure, for which the Home Office had agreed to fund the additional work in the amount of around £10m. It was likely that a further extension of Phase 1 scope would be required to align activities with the start of Phase 2 installation works.

Members were concerned about the consequential effects of Home Office delays to the ESN project and their impact on TfL, with particular reference to the complex choices and sequencing issues these presented to TfL. Shashi Verma confirmed that these issues and the concerns of the Committee would be relayed to the Home Office and escalated if required.

**The Committee noted the paper and the supplementary information on Part 2 of the agenda and endorsed a change in delivery approach to that approved in October 2017, namely;**

- 1 an extension of the Phase 1 infrastructure installation works (subject to full grant funding from the Home Office being agreed for that scope of circa £10m); and**
- 2 a commensurate reduction in the scope of Phase 2, for the delivery and operation by TfL of neutral host 4G infrastructure to support the new Emergency Services Network (ESN) service in the below ground areas of the TfL estate, in the absence of a funding commitment for the whole life costs of ESN.**

### **63/10/18 Crossrail Update**

Simon Kilonback introduced the paper. To allow for the completion of the final infrastructure and extensive testing and to ensure that the Elizabeth line opened as a safe and reliable railway, in August 2018 Crossrail Limited (CRL) had announced that the central section of the Elizabeth line would open in autumn 2019, instead of December 2018. TfL remained fully engaged with CRL and the joint sponsors to work through the revised schedule and financial implications.

Independent reviews of programme schedule, costs and governance had been commissioned and would be shared with the Committee when available.

**The Committee noted the paper.**

### **64/10/18 Member suggestions for future agenda discussions**

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

**The Committee noted the paper.**

### **65/10/18 Date of Next Meeting**

The next scheduled meeting of the Committee would be held on Tuesday 11 December 2018 at 10.15am.

### **66/10/18 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: Strategic Risk Management Update; Barking Riverside Extension Main Works Contract Update; Tottenham Court Road Station Additional Procurement Authority; London Underground Four Lines Modernisation Programme; London Underground Track Partnership Contract; and Emergency Services Network.

The meeting closed at 1.13pm

Chair: \_\_\_\_\_

Date: \_\_\_\_\_

## Programmes and Investment Committee



**Date:** 11 October 2018

**Item:** Matters Arising and Actions List

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### **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

Appendix 2: Surface Assets Update

#### **List of Background Papers:**

Minutes of previous meetings of the Programmes and Investment Committee.

Contact Officer: Howard Carter, General Counsel

Number: 020 3054 7832

Email: [HowardCarter@tfl.gov.uk](mailto:HowardCarter@tfl.gov.uk)

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## 1 Summary

- 1.1 The Surface Transport Asset Renewals paper was presented to the Committee on 11 October 2018. The Committee approved the paper and requested feedback, as per paragraph 3.12 of the IIPAG Surface Assets Sub-Programme Assurance Review, on the strategic objectives that the programme will deliver.
- 1.2 This paper provides an overview of the work that has been undertaken to align the assets programme to the new Mayor's Transport Strategy, and describes further work planned to quantify the alignment.

## 2 Background

- 2.1 The objectives of the Surface Transport Asset Renewals Programme, were derived from and aligned to a number of overarching strategies and policies, including:
- (a) the previous Mayor's Transport Strategy;
  - (b) TfL goals and priorities;
  - (c) duties under the Highways Act (1980) and other relevant legislation; and
  - (d) TfL Asset Management Policy.
- 2.2 In brief, this was translated into safe and reliable assets that minimised whole life costs. This provided a robust framework for the identification and prioritisation of renewal investment needs by assessing and comparing quantified risks in terms of:
- (a) safety - assessing the impact the asset condition/performance has on customer and worker safety;
  - (b) function - assessing the impact the asset condition/performance has on availability, accessibility, customer satisfaction and load carrying capacity;
  - (c) environment - will doing/not doing the renewals have a positive or negative impact on the environment, for example, traffic delays and diversions, tree planting, and energy efficient lights; and
  - (d) whole life cost – an assessment of the whole life cost benefits of intervening.
- 2.3 The new Mayor's Transport Strategy (MTS), in particular the Healthy Streets approach, represents a significant change of emphasis and as such the approach for identifying and prioritising asset renewals needs to be changed.
- 2.4 While it was recognised that the approach needs to be changed to reflect the new MTS priorities, the immediate priority was to focus on safety due to the budget reductions (circa 60 per cent) to this programme in 2018/19 and 2019/20. The paper to the Committee in October explained, that in the interim, the following

## Appendix 2

criteria would be used, alongside the existing risk assessment framework, to ensure safety and guide decisions:

- (a) maintain safety - ensure appropriate asset management practices (inspections, assessments, staff competency, essential renewals etc.) are in place to maintain a safe network and allocate the renewals budget on a reactive safety critical basis;
- (b) protect bus revenue - prioritise investment in assets that protect bus patronage and revenue, including bus stops and shelters, bus stations and traffic signals (to protect bus speeds and bus priority);
- (c) immediately reduce operating costs - consideration will be given to allocating renewals budget where it will immediately offset operating budget pressures, e.g. recurring asset failures/faults; and
- (d) MTS priorities - when comparing competing safety needs, consideration will be given to those that also contribute to MTS outcomes, for example, those which provide greater benefits to pedestrians, cyclists and public transport will be given a higher priority.

2.5 The above was implemented and the following explains the on-going work to formalise, and add detail to, this approach.

## 3 Surface Asset Objectives

3.1 To inform TfL business planning for asset renewals, the following Level of Service definitions were agreed.

**Table 1: Levels of Service**

<b>Level of Service</b>	<b>Description</b>	<b>Characteristics</b>
Safe	The assets are safe to use and do not pose an undue level of risk to customers, staff or supply chain	<ul style="list-style-type: none"><li>• Low level of incidents and claims linked to assets</li><li>• Able to robustly demonstrate the assets and network are safe</li></ul>
Operable	The assets are able to perform their required function (although not necessarily in a reliable manner)	<ul style="list-style-type: none"><li>• Assets may be out of service for short periods of time to restore operability (hence impacting on reliability)</li><li>• A network is considered operable if no more than one major asset/link is out of service at a time and for no more than 3 to 6 months</li></ul>
Reliable	The assets support a reliable service	<ul style="list-style-type: none"><li>• The assets deliver the defined level of service reliability;</li><li>• It is recognised there is an important relationship between safety and reliability on the railway/underground networks</li></ul>

## Appendix 2

3.2 The above definitions were used to agree the Levels of Service TfL will deliver over the next business planning period, shown in Table 2, using a Must have, Should have, Could have (MoSoCo) approach, where:

- (a) Must – definitive “Red Line” that TfL will not compromise;
- (b) Should – some flexibility, and TfL will consider alternative levels of service;
- (c) Could – TfL can accept a reduced level of service.

**Table 2: Agreed levels of service by mode**

<b>Business Area</b>	<b>Safe</b>	<b>Operable</b>	<b>Reliable</b>
London Underground	Must	Must	Should
Rail	Must	Must	Should
Road – buses and signals	Must	Must	Should
Roads - other	Must	Should	Could

3.3 The existing asset management approaches enable the assets in this Programme to be assessed and prioritised using the above criteria, e.g. quantifying the risk posed to Safety, Operability and Reliability.

## 4 Alignment with MTS outcomes

4.1 Annex A sets out, schematically, examples of how asset renewals can contribute to the MTS. This illustrates that some assets, for example, road, and bus station refurbishments; can have a significant positive contribution to the MTS outcomes.

4.2 This asset contribution to MTS outcomes will be incorporated into the renewals prioritisation process by using a two step process as follows:

- (a) Step 1: Risk Prioritisation – the risks to safety, operability and reliability are assessed using existing tried and test techniques; this creates an initial prioritised list of renewal projects; and
- (b) Step 2: MTS Adjustments – each scheme is scored against the MTS outcomes (bar safety which is already accounted for) and the prioritised list is amended in a workshop environment.

4.3 The scoring system used to assess the contribution to MTS outcomes is shown in Table 3.

## Appendix 2

**Table 3: Ranking contribution to MTS outcomes**

Rank	Impact	Measure of improvement	Description
3	Major improvement	20%	The renewal makes a major functional or aesthetic contribution to this MTS outcome
2	Moderate improvement	10%	The renewal makes a moderate functional or aesthetic contribution to this MTS outcome
1	Slight improvement	5%	The renewal only has a slight functional or aesthetic contribution to this MTS outcome
0	Neutral	No change	The renewal does not have a functional or aesthetically based contribution to this MTS outcome

4.4 The above approach is currently being applied to the development of the 2019/20 programme.

## 5 Next Steps

5.1 It is recognised that the approach for aligning asset renewals to MTS outcomes is relatively coarse, and further work is planned to refine this, including:

- (a) weighting MTS outcomes using a pairwise comparison, which is a formal approach used to capture stakeholder opinions;
- (b) quantification of the scale in Table 3 where possible and linking directly to asset types – the existing risk based approach started as a qualitative/semi-quantitative approach and was refined over a number of years to the fully quantified approach it is now. The same approach, of ongoing refinement, will be used to help quantify the contribution that different types of renewals make to MTS outcomes; and
- (c) customer surveys – building on existing customer surveys to aid the quantification of asset contributions to MTS outcomes.

## 6 Summary

6.1 The overall objectives/outcomes for this programme have been defined using the Safe, Operable and Reliable definitions, and the levels of service have been agreed for each business area.

6.2 Alignment to, and contribution to MTS outcomes, will be assessed using a qualitative/semi-quantitative approach that will be used to amend the initial list of risk based priorities.



## Appendix 2

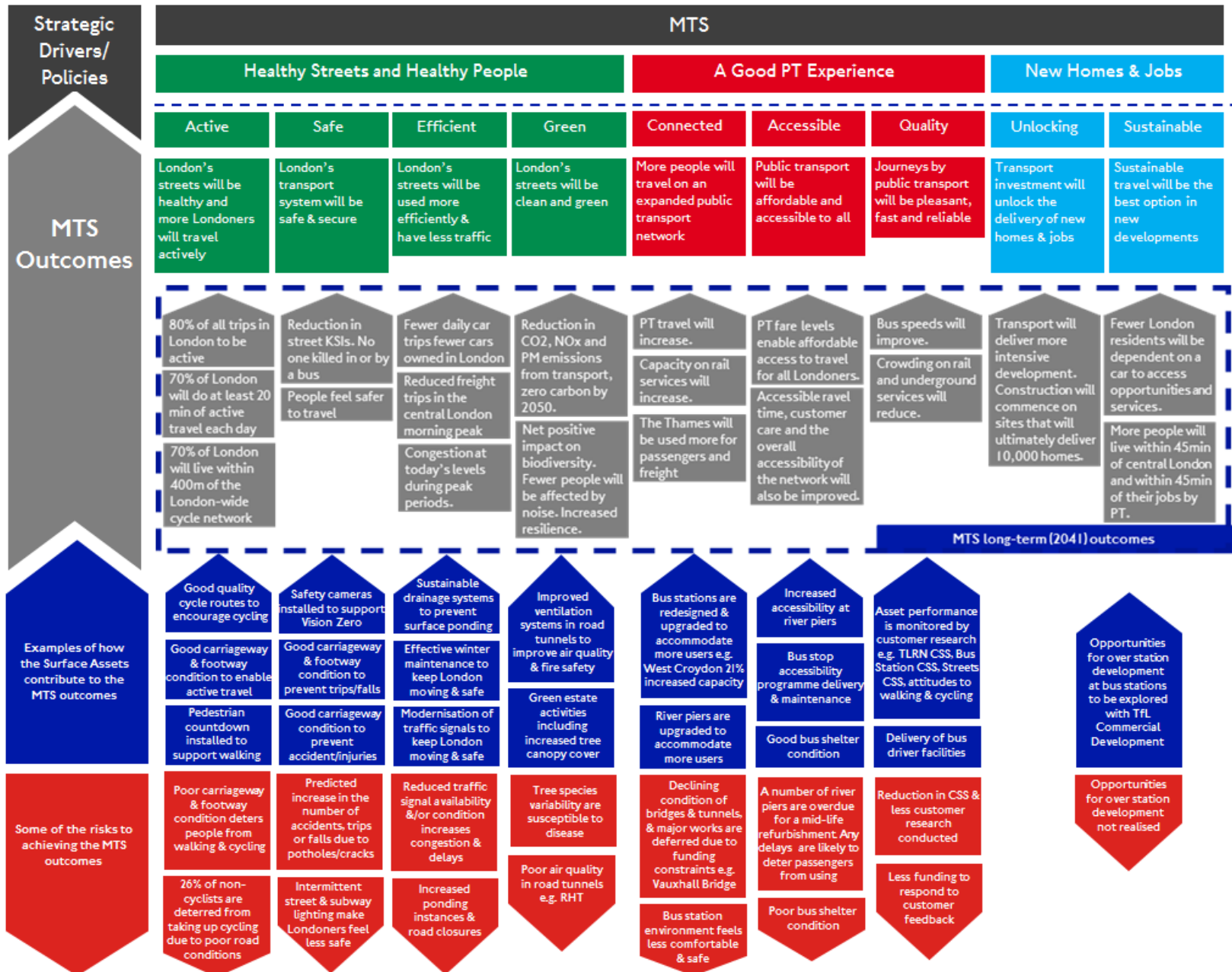
### List of appendices to this update:

Annex A: Examples of aligning asset renewals to MTS outcomes

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# Appendix 2

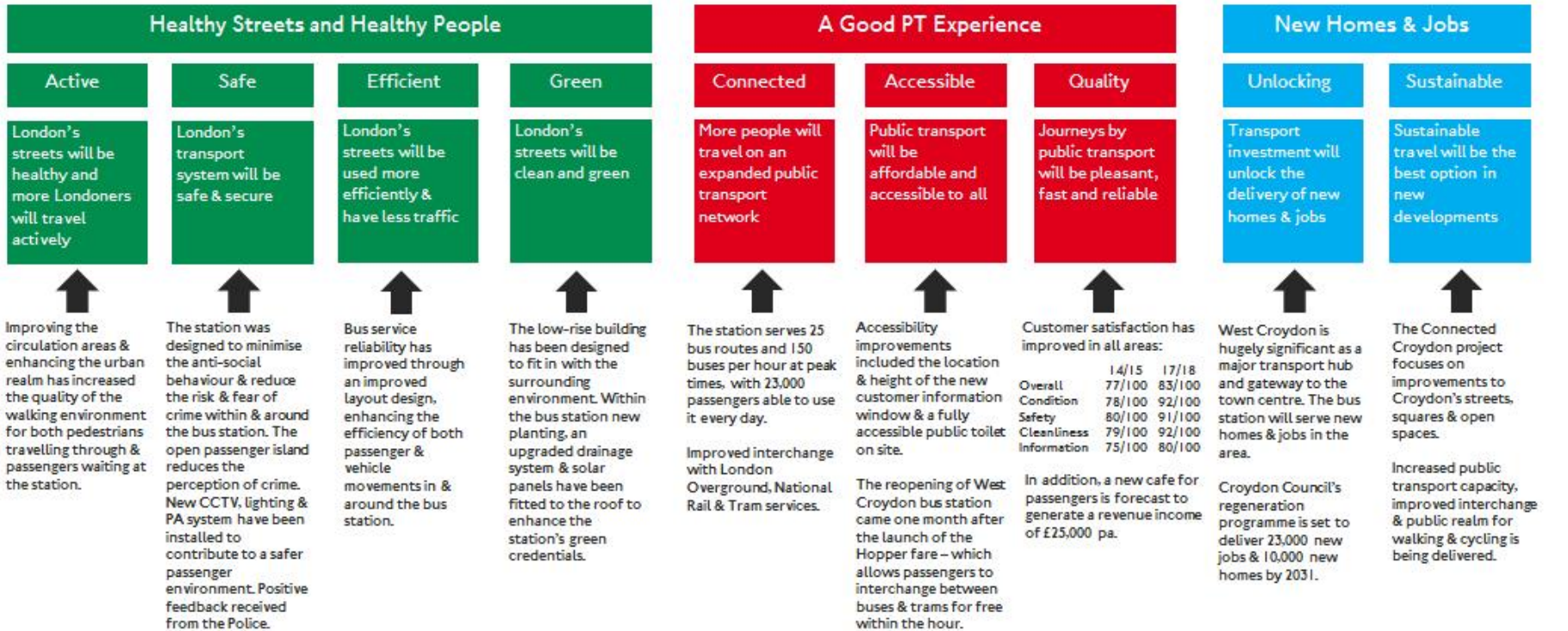
## Appendix A: Examples of aligning asset renewals to MTS outcomes



## 4 Example – Connected: West Croydon Bus Station

West Croydon bus station has been transformed to deliver more accessible and efficient journeys that support the regeneration of Croydon. The old station was replaced by an open concourse under a weathering steel canopy. The canopy wraps around and connects two small buildings – a retail unit and a bus operations building. The choice of materials was carefully considered to reduce whole life costs. Timber seating and planters are fully integrated into the steel canopy structure, along with customer information and lighting to minimise visual clutter.

- The station, which cost c.£4.5m, was completely rebuilt with an open, pedestrian-friendly layout, and 21% increased capacity to deliver more accessible and efficient journeys. Opened in 2016.
- The station serves 25 bus routes and 150 buses per hour at peak times, with 23,000 passengers able to use it every day.
- Situated on the site of the previous station, it provides close links to the London Overground station and Tram station.



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## Programmes and Investment Committee Action List (reported to the meeting on 11 December 2018)

Actions from the meeting of the Programmes and Investment Committee held on 11 October 2018

Minute No.	Description	Action By	Target Date	Status note
53/10/18	<p><b>Investment Programme Report – Quarter 1 2018/19</b> TfL would make available the list of accessible stations and look to make it more visible on its website and elsewhere.</p>	David Hughes/ Vernon Everitt	December 2018	<p><b>Complete.</b> Members were sent a list of currently accessible stations on 21 November 2018.</p> <p>We are developing a new, comprehensive, dataset to cover station accessibility. This will be used in TfL digital products, and will be made available to 3rd parties as open data. We expect this data to be available at the same time as TfL Go.</p> <p>TfL Go is a journey companion app that has this accessible travel information at its heart. TfL Go will enable dynamic, personalised mapping of the network with more detailed information on accessible route options.</p> <p>We are working with mobility</p>

Minute No.	Description	Action By	Target Date	Status note
				impaired users to ensure that their needs are met and we will expand this to visually impaired users for future phases of the product. TfL Go is planned for release in 2019.
54/10/18	<p><b>Independent Investment Programme Advisory Group – Quarterly Report</b></p> <p>The Committee questioned why a number of IIPAG recommendations had not been given a TfL management response. Michael Bridgeland told the Committee that, although figure 1 in the report showed a decrease in the number of closed recommendations, current tracking showed that this figure had improved. It was agreed that an updated report would be provided to the Committee before its next meeting.</p>	Michael Bridgeland	November 2018	<b>Complete.</b> Members were sent an updated response to IIPAG recommendations on 16 November 2018.
59/10/18	<p><b>Surface Transport Asset Renewals Programme</b></p> <p>The Committee requested that the IIPAG recommendation regarding the strategic objectives that the surface assets were to deliver be set out by December 2018 and be shared with the Committee.</p>	Garry Sterritt	December 2018	<b>Complete.</b> An update is appended to this paper.

## Actions from previous meetings of the Committee

Minute No.	Description	Action By	Target Date	Status note
35/07/18	<p><b>Investment Programme Report – Quarter 4 2017/18 – Bank Station</b></p> <p>A cost review had been undertaken on the Bank station capacity and systems integration upgrade project, to ensure that there was a common goal on cost reduction. A paper would be submitted to the Committee on Bank station capacity at a later date.</p>	Stuart Harvey	December 2018	<b>Complete.</b> A paper appears on this agenda.
36/07/18	<p><b>Independent Investment Programme Advisory Group – Quarterly Report – Telecoms issues</b></p> <p>A note on how telecoms issues would be resolved would be provided to the Committee.</p>	Shashi Verma	March 2019	An update will be provided in early 2019.
38/07/18	<p><b>TfL Growth Fund</b></p> <p>The Committee requested that future updates include details on how projects and the benefits derived were monitored and evaluated.</p>	Alex Williams	March 2019	This action will be addressed in March 2019.
45/07/18	<p><b>Member suggestions for future agenda discussions</b></p> <p>The Committee requested that the following information be provided at future Committee meetings:</p> <p>(a) Information on the Northern and Bakerloo line extensions;</p> <p>(b) Oxford Street;</p> <p>(c) Rotherhithe to Canary Wharf Crossing;</p> <p>(d) The interactions between TfL and HS2 systems;</p> <p>(e) Potential issues arising from the expansion of Heathrow Airport, particularly unforeseen cost for Surface Transport; and</p> <p>(f) Information on the overall schedule of work for TfL to be included in the Investment Programme Report.</p>	Secretariat	Ongoing	<p>(a) An informal briefing was provided in October 2018. A Report is on the agenda.</p> <p>(b) On forward plan.</p> <p>(c) An informal briefing was provided in October 2018.</p> <p>(d) Will be addressed in LU Stations paper in 2019.</p> <p>(e) On forward plan</p> <p>(f) Included in the Report on the October 2018 agenda.</p>

<b>Minute No.</b>	<b>Description</b>	<b>Action By</b>	<b>Target Date</b>	<b>Status note</b>
<b>25/05/18</b>	<b>London Underground Legacy Signalling and Information</b> The Committee requested a future discussion on the use of innovative technology for signalling upgrade works, such as 5G.	David Hughes	Ongoing	This work is being progressed. An update will be provided to a future meeting.
<b>13/02/18</b>	<b>Member suggestions for future agenda discussions</b> 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.	Tony King	Ongoing	This work is being progressed. An update will be provided to a future meeting.
<b>19/03/17</b>	<b>Member suggestions for future agenda discussions</b> Members requested that officers consider how investment and cost profiles, and the funding for them, best be shared with Members going forward.	Tony King	Ongoing	Work on this is ongoing and will be addressed in Board Business Planning discussions.



## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** Investment Programme Report – Quarter 2, 2018/19

---

### **This paper will be considered in public**

#### **1 Summary**

1.1 The Investment Programme Report describes the progress and performance in Quarter 2, 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 2, 2018/19.

#### **List of Background Papers:**

None

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# Transport for London investment programme report

Quarter 2 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 (LRS), London Dial-a-Ride, Victoria Coach Station (VCS), Santander Cycles and the Emirates Air Line (EAL). 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 it opens, will add 10 per cent to 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.

It presents a progress update on the major projects and sub-programmes that seek authority each year (unless extraordinary approvals are needed) to the Programmes and Investment Committee.

For each major project or 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. In addition to the committed projects and programmes included in this report, we will be seeking to obtain capital spend authority for schemes such as the Bakerloo Line Extension and Crossrail 2.

Each 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:



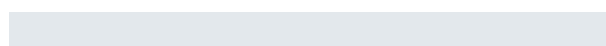
1-89 days late:



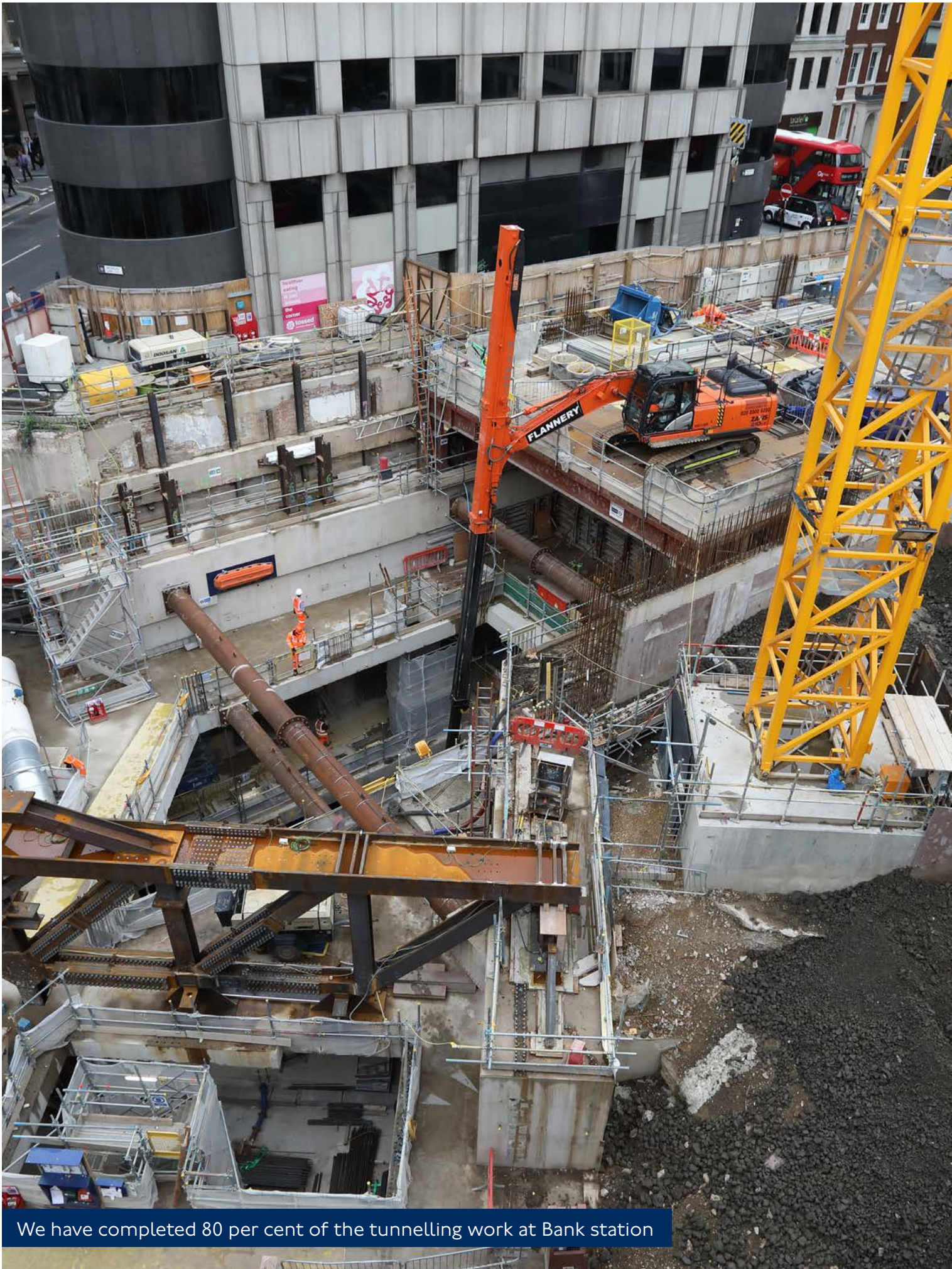
90 or more days late:



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



Budget milestones for 2018/19 – the key milestones listed in the TfL Budget – are detailed in the Appendix (page 84).



We have completed 80 per cent of the tunnelling work at Bank station



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 37) 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 38-49
- Surface comprises Healthy Streets, air quality and environment, public transport, and asset investment. These are covered in pages 50-69
- Other comprises technology and data, TfL Growth Fund, and the Elizabeth line (including Crossrail), which are covered in pages 70-81

# 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 opening the Elizabeth line. We are also making local 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 themes from the Mayor's Transport Strategy:

**The Mayor's Transport Strategy themes that we are delivering through our diverse Investment Programme are indicated in this report as follows:**

---

**Healthy Streets and healthy people**



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**A good public transport experience**



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**New homes and jobs**





The Mayor's Transport Strategy aims to deliver a good public transport experience

# 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\*

**940** Trains on the TfL network



**580km**

TfL-operated highways



**680km**

TfL-operated Rail and Underground routes



**9,550**

Buses on the TfL network



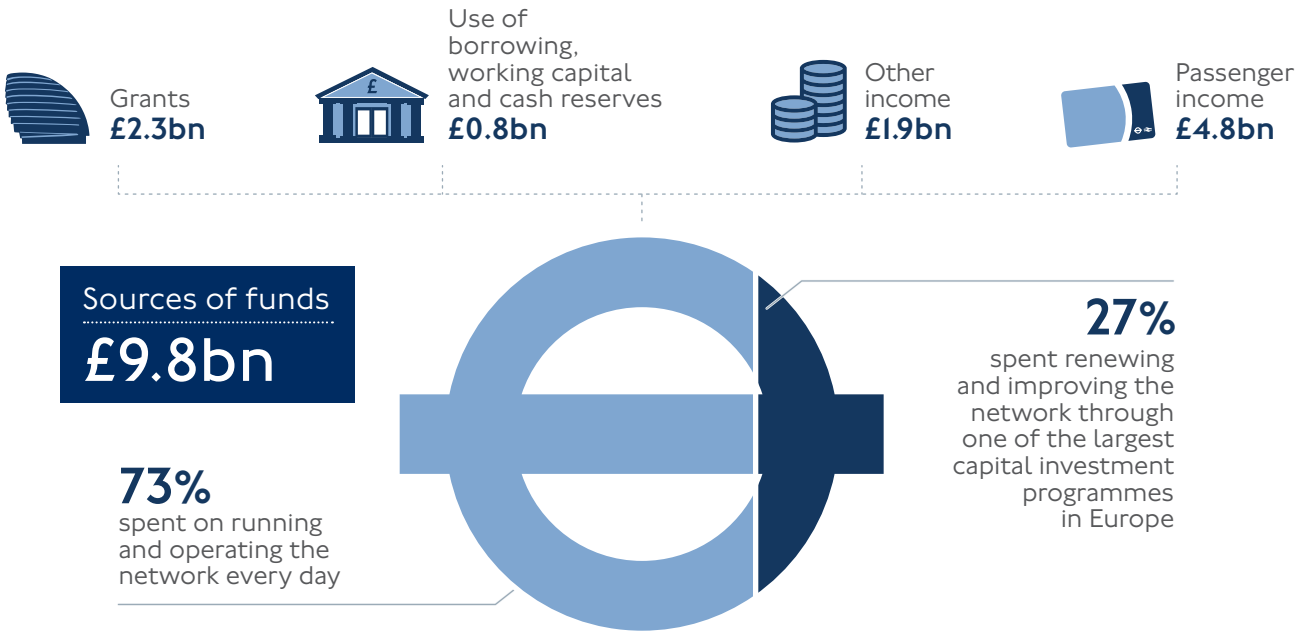
**6,350**

Traffic signals operated by TfL

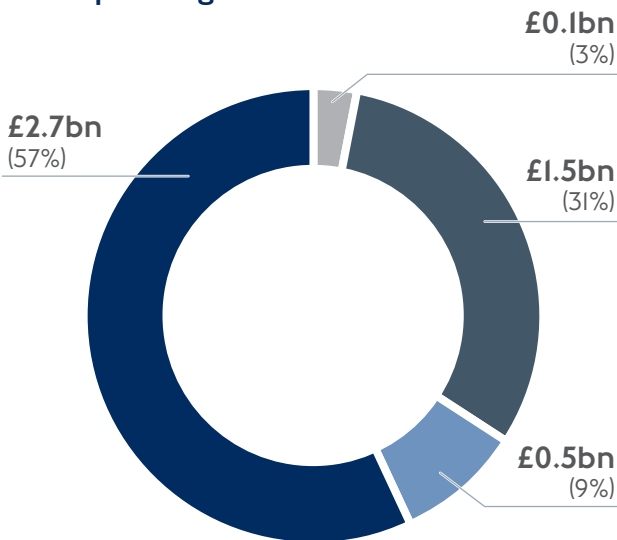


\*Based on full year 2017/18

## Budget at a glance



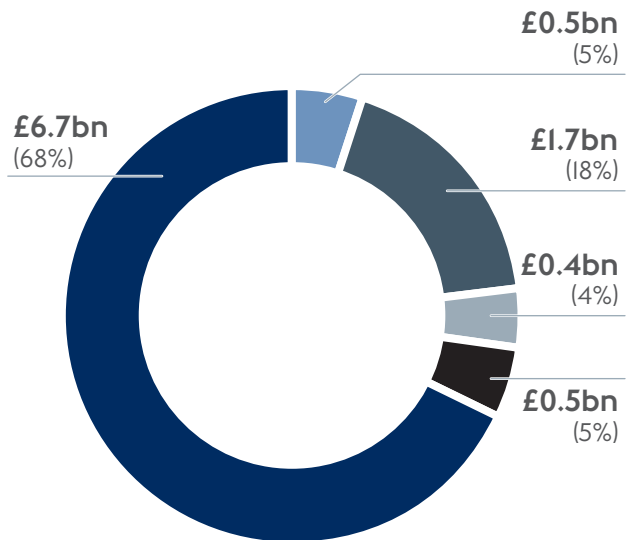
## Total passenger income



Total: **£4.8bn**

- Underground
- Rail
- Buses
- TfL Rail

## Total costs



Total: **£9.8bn**

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

# Key achievements

## Line upgrades

As part of the Four Lines Modernisation programme, we have installed the new automatic train control equipment on 75 trains required for the front section of the new signalling. We are also on schedule to upgrade trains for the remaining sections of the railway.

On the Capacity Optimisation programme, we have completed Northern Line Speed Improvement and all of the track works. The design and build contract has been awarded for the Northern line power works.

## Network extensions

On the Northern Line Extension, we have built four cross passages between Kennington station's platforms and have now resumed services. Track has been installed in the tunnels between Nine Elms station and Battersea Power Station. We have nearly completed the architectural ceiling in the ticket hall. We received an 'Excellent' rating on our interim Civil Engineering Environmental Quality Assessment and Awards Scheme (CEEQUAL) assessment (sustainability self-assessment and awards scheme).

## Stations and infrastructure

In August 2018, we opened three new escalators leading down from the south ticket hall at Victoria and reinstated the Kent Stairs linking the south ticket hall directly into the Network Rail station. This will help relieve congestion.

Victoria Tube station is now step-free, improving access for millions of people. Seven new lifts have been installed, enabling step-free journeys between the street and Victoria line trains and the Circle and District line platforms. Customers from the mainline station can also travel step-free to the Tube station and interchange more easily between the three lines.

At Bank Bloomberg Place, we have completed the majority of the physical installation works across the new station entrance and only minor finishing works and cleaning remain. Final inspections are taking place, along with final system integration tests.

At Bank station, we have completed 80 per cent of the tunnelling work and we are ahead of schedule for waterproofing the tunnels. We marked a major achievement by completing the large-scale, top-down excavation works and we can now begin installing lift shafts for the new station entrance and ticket hall under the Bank project.

## London Underground track and civils

We have now replaced 1.7km of ballasted track, 350 metres of drainage and 800 metres of concreted deep Tube track. In August, we replaced the track from South Kensington to Gloucester Road and reduced the vertical step between trains and platform one.



Services have resumed at Kennington station

During a weekend in early September, we completed more than 300 metres of track between Woodford and South Woodford and at Leytonstone.

On the Jubilee line, we have refurbished 31 out of 63 trains and they are now back in service. The refurbishment includes a wheelchair area, new flooring, refreshed interiors and works to improve the reliability of trains.

### **Surface**

The Healthy Streets programme is progressing to plan. We have completed 32 Mini-Hollands schemes, including the A105 Green Lanes scheme, a five kilometre protected cycle route linking Enfield Town to Palmers Green.

We have completed 40 kilometres of the 85km Central London Cycling Grid network, including several sections of Quietway and Cycle Superhighway routes, such as Broadway Market to Old Street, Blackfriars to Tower Bridge and Earls Court to Belgravia.

Following the successful launch of Quietway 2 (East), the route was used by 24,000 cyclists.

Since launching the Eastern and Western sections of Quietway 2 the Walking and Cycling Commissioner has launched six further Quietways. These include Gladstone Park to Kilburn, Oval to Clapham Common, Wanstead Flats to Barkingside, Central London Grid: Blackfriars to Tower Bridge Road, Earls Court to Belgravia and Stratford High Street to Newham Way.

On 19 September, we partnered with Oakdale Junior School to mark the European Day Without A Road Death. The event saw 54 pupils, who regularly have to cross Charlie Brown's Roundabout on their way to and from school, take part in a walking bus and big breakfast. The event was a success and particularly poignant for many of the staff who volunteered on the day following the death of the mother of one of the pupils at the roundabout in 2016.

We completed the extension to Cycle Superhighway 6 in September 2018, delivering safety improvements at two Safer Junctions locations. In addition to segregated cycle lanes replacing sections of traffic and bus lane on Farringdon Road and Farringdon Street, we introduced new traffic restrictions at the junction with Clerkenwell Road to help create better conditions for cyclists.

The boroughs of Ealing, Greenwich, Hackney, Haringey, Havering, Lewisham and Waltham Forest were all successful in their initial bids for funding under the Liveable Neighbourhoods programme and will now develop their proposals to secure implementation funding. There will be another round of funding allocation in 2018, when other boroughs will be able to submit proposals for further Liveable Neighbourhoods funding.

There are now more than 2,200 Ultra Low Emission Zone (ULEZ) compliant buses (both single and double deck) in service. More than 80 per cent of the bus fleet travelling in the zone is already compliant with the new emission standards.



The Edmonton to Seven Sisters corridor is more than 90 per cent complete and the Stratford corridor is 70 per cent complete. In addition to vehicles operating in the ULEZ, we are also retrofitting NOx abatement equipment on buses across London. More than 2,000 buses have been converted and these are directly delivering benefits for the Mayor's programme to improve air quality. At the National Air Quality Awards in October, the Low Emission Bus Zone programme won the award for Passenger Transport Air Quality Initiative of the year.

As of 12 October, we have installed 135 rapid charging points on our highways and land under the Ultra Low Emission Vehicles project. Sixty of these points are now dedicated for taxis.

A significant milestone was achieved at the end of August 18 with the launch of the second phase of the replacement of Ardleigh Green Bridge over the railway.

In preparation for the new London Overground rolling stock platform extension, works are now complete on the Gospel Oak to Barking line and 'correct side door' equipment has been installed on the line, as well as West Anglia lines and the Romford to Upminster line.

The train protection warning system has also been installed on the sections of the Euston to Watford line that are shared by London Underground and London Overground services

London Trams went cashless in July. The existing ticket machines, which date to the opening of the system, will be removed and the newly available space at our tram stops will provide additional platform capacity, seating and/or information boards, depending on location.

### **London Underground stations**

We have completed concept design for the South Kensington station capacity upgrade and continue work to appoint a design and build contractor later this year to deliver the works.

We recently installed new platform displays at several locations including Temple, Fulham Broadway, Upney and Amersham to provide accurate train information to customers. We completed lift installation works at Newbury Park and the station became step-free on 1 November 2018.

### **Other**

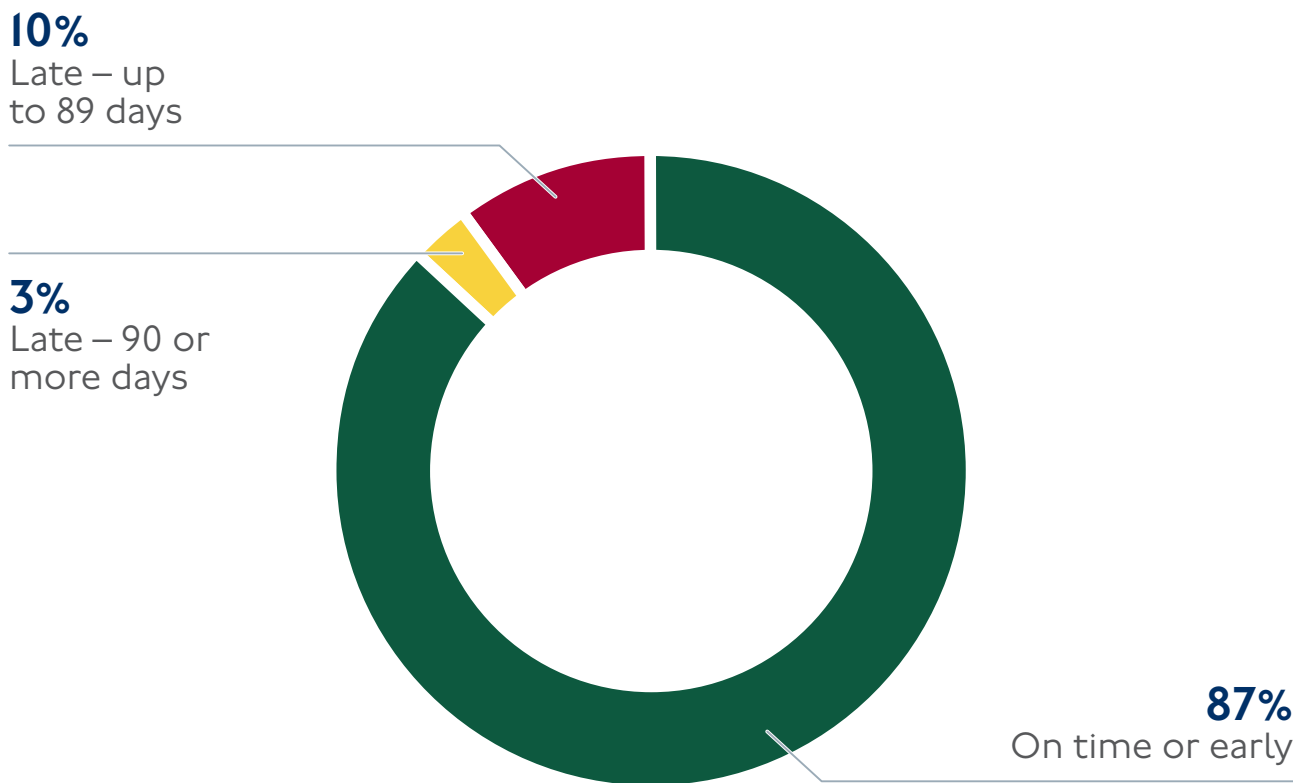
The contactless functionality in the Oyster and contactless app was updated in August to allow customers to add a contactless card to their account in the app.



We continue to improve our Cycle Superhighways

# 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 Appendix A.



Our new rolling stock

# Major projects

Line upgrades 

## Four Lines Modernisation

Forecast completion year

**2023**

Spend to date (£m)

**4,463**

Spend authority (£m)


**5,412**

EFC (£m)

**5,243**

EFC movement post plan (£m)

**16**

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.

We continue to test the automatic train control system to ensure its reliability before it is brought into service. The scope of testing has been extended and now includes the route from Hammersmith to Stepney Green, Monument and Finchley Road, and around Earls Court. The first section will go live in the first quarter of 2019. Reliability is essential as there are 14 migration areas to follow as planned.

We are targetting commissioning of the Circle line by the end of 2019 to support an early timetable uplift in March 2020. This would be 21 months ahead of schedule. Commissioning of the final signalling area between Rayners Lane and Uxbridge remains on schedule to support the final timetable uplift in May 2023.

The EFC remains at £5,243m this quarter, £16m lower than the 2017 Business Plan. The reduction to plan is the result of a revised strategy regarding the removal of redundant assets and savings driven by reduced decommissioning costs at the Network Rail test track. There are early indications of a cost challenge on the main signalling contract, which is being reviewed in detail to drive mitigations.

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All trains are being fitted with automatic train control equipment. We have converted 75 trains, which is enough to support automatic train operation in the first section of the railway between Hammersmith and Latimer Road. We are on schedule to upgrade sufficient trains for the remaining sections of the railway.

Overall, the programme is below budget and financial authority. The EFC has remained steady at £169m below financial authority at £5,243m.

### Assurance

Project Assurance completed an integrated assurance review on the Four Lines Modernisation programme submission to the Programmes and Investment Committee meeting on 11 October 2018. Fifteen recommendations were made and accepted, including 11 by the Independent Investment Programme Advisory Group (IIPAG). We are making good progress to close out the recommendations. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.



Rolling stock on the Hammersmith & City line



## Capacity Optimisation – World Class Capacity

Forecast completion year

**2024**

Spend to date (£m)

**104**

Spend authority (£m)

**245**

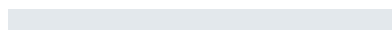
EFC (£m)

**209**

EFC movement post plan (£m)

**36**

2018/19 budget milestone RAG



**World Class Capacity is a new portfolio of enhancement works, including signalling, power, track and data to increase capacity on the Jubilee and Northern lines without needing additional fleet.**

We are on schedule to complete all milestones to deliver elements of scope for the Northern Line Extension and Bank capacity upgrade, which were not previously part of World Class Capacity. We have completed the Northern line speed improvement and track works. The design and build contract has been awarded for the Northern line power works.

An additional wheel lathe and lifting facility is required at Morden Depot to increase train availability to peak service frequencies on the Northern line once the extension has opened. This project is taking place in collaboration with Alstom, which provides the Northern line fleet.

### Assurance

Project Assurance has 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 on 11 October 2018 on the six recommendations that were made and accepted, including three by IIPAG. All recommendations are now closed out. Project Assurance tracks progress against these as part of continuous assurance.

The EFC has reduced by £36m against the 2017 Business Plan.

The reduction relates to the removal of turning facilities at East Finchley, following a strategic scope review and savings identified from a programme cost and risk review.





## Capacity Optimisation – DLR Rolling Stock and System Integration

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
<b>2025</b>	<b>10</b>	<b>22</b>	<b>*</b>	<b>*</b>

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, and have established credible and achievable future plans. There have been zero accidents or injuries.

The programme will replace rolling stock that is nearing the end of its life and provide additional trains, which will increase capacity to meet the projected growth in the Docklands area. The depot at Beckton needs to 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.

Tenders to replace the rolling stock were received on 1 June 2018, with evaluations due to finish by the end of 2018. The depot concept design has been accepted by stakeholders with tender documents completed for the next detailed design contract. Geotechnical and topographical surveys have been contracted and work has started on site.

Workshops with Keolis Amey Docklands to plan how the operational service will be maintained during the depot works has begun. Negotiations with UK Power Networks to secure additional power supplies have begun and a solution proposed. Negotiations continue with Thales to agree the scope of services for the signalling upgrade required to support the replacement rolling stock.

Specific progress highlights include the ongoing evaluation of the rolling stock procurement, and receipt of responses to the detailed design tenders in respect of the Beckton Depot project.

\* This information is withheld until final contract is awarded



New Piccadilly line trains

# Deep Tube Upgrade programme



## Deep Tube Upgrade programme

Forecast completion year

**2034**

Spend to date (£m)

**92**

Spend authority (£m)

**3,294**

EFC (£m)

**3225**

EFC movement post plan (£m)

**\***

2018/19 budget milestone RAG



**The Deep Tube Upgrade programme will provide more capacity on the Bakerloo, Central, Piccadilly and Waterloo & City lines. There will be 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.**

Following the announcement of our intention to award the Contract for the Piccadilly line rolling stock to Siemens Mobility Limited in June 2018, and subsequent claims by the unsuccessful bidders that resulted in an automatic suspension of the contract award, we submitted an application to lift the suspension in Quarter 2. This was successful and the contract with Siemens has been signed.

### Assurance

Project Assurance completed an integrated assurance review on the Deep Tube Upgrade programme submission to the Programmes and Investment Committee meeting in May 2018. A quarterly update was provided to the Committee on 11 October 2018 on the 10 recommendations that were made and accepted, including five by IIPAG. Nine recommendations are closed and good progress is being made to close the one remaining. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.

The EFC and spend authority relates only to works and enabling associated with the introduction of the Piccadilly line rolling stock. Work continues on additional scope for the Deep Tube Upgrade programme, which forms part of a wider programme EFC. The EFC is £69m lower than spend authority, primarily as a result of increased certainty of resourcing requirements and an associated reduction in risk.

\* The 2017 Business Plan was based on an aggregated programme for all DTUP works. This was disaggregated in May 2018 for authority approval of the Piccadilly rolling stock and associated enabling works as now represented in the above EFC.

# Network extensions



## Northern Line Extension

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
2020**	643	*	*	*

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 is a catalyst for the regeneration of the Vauxhall Nine Elms Battersea Opportunity Area.**

Following the construction of four cross passages between Kennington station’s platforms and the resumption of services, the final fit out of the station is now complete. This includes the installation of the flooring and electrical works, as well as tiling the walls.

The basement for the Kennington Green head-house has been excavated and has allowed the base slab to be cast and the secondary lining in the shaft is to be completed. Excavation at Kennington Park head-house is ongoing with temporary propping installed.

At Nine Elms station, the primary civils construction works were completed in late September. More than two-thirds of the pre-cast platform sections have been installed and casting of the lining wall and column encasement continues. Site set-up to create the internal walls and rooms and construction of the eastern superstructure has started.

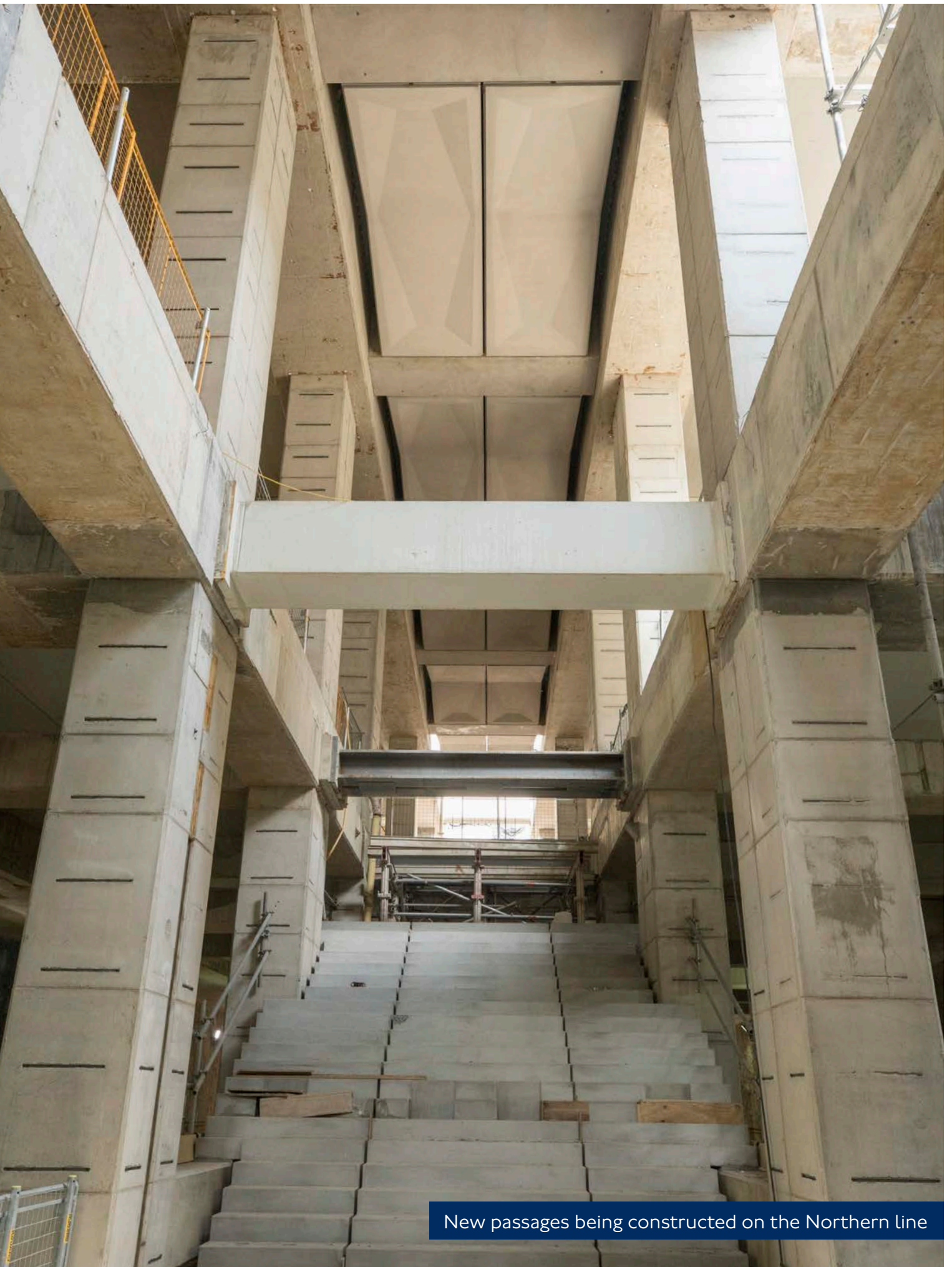
Construction has started at Battersea Power Station on the internal walls. Construction of the eastern and western service lift shafts and emergency stairs were completed in September 2018. Installation of the architectural ceiling in the ticket hall continues with 80 of the final 92 sections installed. Both platforms have been completed and pre-cast stairways installed. Work continues on the back of house internal rooms.

Track has now been installed in the tunnel sections from Nine Elms station to Battersea Power Station. The cable management system between Kennington Green shaft and Nine Elms station is complete and was installed between Kennington Park shaft and Nine Elms station as planned in October 2018.

We achieved an ‘Excellent’ rating on our interim CEEQUAL assessment. This reflects commitments and focused efforts from both client and design teams to embed and influence environmental, economic and social elements.

\* This information is withheld for reasons of commercial sensitivity.

\*\* This is being reviewed as the designs for Battersea Power Station’s over site development and the Tube station have evolved.



New passages being constructed on the Northern line

## Silvertown Tunnel

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
<b>2024</b>	<b>45</b>	<b>*</b>	<b>*</b>	<b>*</b>

2018/19 budget milestone RAG 

### We are providing a 1.4km twin-bore road tunnel under the Thames connecting Silvertown and the Greenwich Peninsula, which will relieve congestion at Blackwall Tunnel.

The contract award has been delayed by five months until July 2019 as additional ground investigation surveys had to be completed. The remaining land surveys were delayed due to the development consent order postponement affecting private land access, which resulted in an increased time to complete arrangements. Surveys are now complete and will inform the bidders' final technical submissions, which are expected at the end of January 2019. The first stage of technical submissions were delivered in July and we are evaluating them.

Contracts were awarded to two separate consultancies in July for the detailed design of the North Greenwich car park and other minor supplementary works. We did this in advance of the main Public Private Partnership contract in order to reduce the risk of delays.

We let the contract for the baseline monitoring of assets belonging to DLR, Emirates Air Line and Southern Gas Networks/Birch sites in July 2018. Work will start this autumn to install the monitoring equipment and the 12 month monitoring period will start immediately afterwards.

#### Assurance

Project Assurance completed an integrated assurance review on the Silvertown Tunnel programme submission to the Programmes and Investment Committee meeting in July 2018. A quarterly update was provided to the Committee on 11 October 2018 on the 10 recommendations that were made and accepted, including six by IIPAG. Five recommendations are closed and good progress is being made to close the remaining five. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.

\* This information is withheld for reasons of commercial sensitivity.

## Barking Riverside Extension

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
<b>2021</b>	<b>22</b>	*	*	*

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 allow our service to extend to Barking Riverside. Train services are planned to start in 2021.**

In August 2017, the Secretary of State for Transport granted powers to deliver the 4.5km Barking Riverside Extension and we plan to start the main construction works in spring 2019. Demolition works were completed in May 2018 and we have procured the overhead line equipment sectioning and switching works that will be carried out over Christmas 2018. Preparations for these works are progressing well and we are working with Network Rail for the main contractor to take possession of its infrastructure, which is planned for 2019.

The budget milestone is red due to tender returns for the main works contract, which were received in July 2018. Due to bid returns from the two bidders being higher than anticipated, we reviewed the scope and value engineering opportunities on the programme. This will be included in a 'best and final offer' process, which

will conclude with a forecast contract award by December 2018. This will not impact the current completion date. The additional time for this process will support achieving the best commercial outcome for us.

### Assurance

Project Assurance completed an integrated assurance review on the Barking Riverside Extension programme submission to the Programmes and Investment Committee meeting in May 2018. A quarterly update was provided to the Committee on 11 October 2018 on the 10 recommendations that were made and accepted, including seven by 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 IIPAG, as part of its continuous assurance.

\* This information is withheld for reasons of commercial sensitivity.



The entrance to a new ticket hall at Victoria station



# Major stations

## Victoria station upgrade and finishes

Forecast completion year

**2018**

Spend to date (£m)

**568**

Spend authority (£m)

**660**

EFC (£m)

**581**

EFC movement post plan (£m)

**3**

2018/19 budget milestone RAG 

**We have built a new north ticket hall and 300 metres of subways, and have 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 reduced by £3m due to the reduction in financial risk provision as the project nears completion.

Three new escalators leading down from the south ticket hall were bought into use in August 2018, as well as reinstating the stairs linking the south ticket hall with the Network Rail station. This has relieved congestion by providing a new route from the south ticket hall to the Victoria line platforms via six further escalators.

We continue to rebuild the Duke of York pub, which was demolished to allow jet grouting works for the tunnels. Stud wall frameworks have been completed and the internal plastering and mechanical and engineering works are now well under way.

The new station is being opened in stages. Since the quarter close, all the new customer facilities have been opened. The overall completion of the station, surrounding buildings and urban realm are planned for mid-2019.

We achieved a major milestone this quarter as Victoria station became step-free. The new lifts are part of an upgrade project that has almost doubled the size of the station.

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## Bank Bloomberg Place

Forecast completion year

**2018**

Spend to date (£m)

**52**

Spend authority (£m)

**58**

EFC (£m)

**58**

EFC movement post plan (£m)

**0**

2018/19 budget milestone RAG



**Alongside the Bloomberg Place site redevelopment next to Walbrook, we are building a new entrance for the Waterloo & City line, with connections to the existing concourse. The station 'box' was constructed by Bloomberg on our behalf.**

The majority of the installation works are now complete across the new station entrance, with minor finishing works and cleaning to do. Final inspections are now taking place. We have started to integrate the fire and communication systems into the existing Bank station to ensure the new station entrance opens and operates safely.

We continue to work with the contractor on the remaining activities to ensure the new entrance opens at the end of 2018.

## Bank station upgrade

Forecast completion year

**2022**

Spend to date (£m)

**384**

Spend authority (£m)

**608**

EFC (£m)

**656**

EFC movement post plan (£m)

**(34)**

2018/19 budget milestone RAG



**We are increasing capacity at Bank station by 40 per cent, which will provide a quicker interchange, new Northern line southbound tunnel, new entrance and step-free access to the Northern and Waterloo & City lines. The project also includes asset integration on the DLR.**

We have completed 80 per cent of the tunnels and waterproofing of the new tunnels has started ahead of schedule. We have waterproofed the new Central line moving walkway link. The remaining tunnelling works are on schedule and should be completed prior to the Northern line blockade works.

We have completed the largescale top-down excavation of the new station box, marking a significant achievement for the project. The next phase involves starting the lift shafts for the new station entrance and ticket hall under the Bank project. Enabling works at the Northern line platform are almost complete and will create a connection between the existing and the new parts of the station.

Works to relocate the high voltage power supplies for the Central line were completed in mid-August. We removed the redundant power and transformer equipment, via engineer's trains ahead of schedule, releasing Central line shaft demolition works ahead of plan so that tunnelling works can begin in 2019.

A comprehensive EFC review, which commenced in January 2018, was concluded in this quarter. This has resulted in a revised EFC of £656m, an increase of £34m. The increase in EFC is driven by a number of factors including, prolongation, labour cost challenges and impacts from affected building owners. The project is committed to identifying opportunities to reduce this EFC and has a collaborative approach with the main contractor to identify opportunities and realise savings. Additional authority is being sought and will be funded through savings made in the Major Stations programme.

## Bakerloo line link (funded by Crossrail)

Forecast completion year

**2018**

Spend to date (£m)

**66**

Spend authority (£m)

**67**

EFC (£m)

**69**

EFC movement post plan (£m)

**(2)**

2018/19 budget milestone RAG



### We are providing a new step-free pedestrian walkway at Paddington to link the Bakerloo line platforms with the new Elizabeth line station.

The Bakerloo line link will provide a step-free link from the Bakerloo line to the new Paddington Elizabeth line station. Two new escalators and a new lift have been installed. We have completed the testing and commissioning works.

Crossrail has supplied permanent power, which enables us to remove the temporary power.

The Paddington Quarter scheme, which is a significant development managed by Sellar, has sought early handback of the Royal Mail Group building. Crossrail has successfully negotiated with Sellar, and the contractor has now vacated the building (apart from the front loading bay).

The EFC has increased by £1m this quarter and by £2m compared to the Business Plan. This was because of delays in the permanent power and cladding installation.

\* Crossrail funded, 100 per cent refunded, no provision made in Business Plan

## Holborn station capacity

Forecast completion year

**2028**

Spend to date (£m)

**4**

Spend authority (£m)

**5**

EFC (£m)

**5**

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 new second station entrance and exit on Procter Street. Step-free access 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 cut down on crowding during peak periods.**

Tender documentation is being prepared to take the scheme forward through a Transport and Works Act Order, design and construction. We are also exploring opportunities to reduce cost by looking at lessons learned from the wider stations programme. This ensures the competitive dialogue phase remains focused on working within budget constraints.

The EFC represents early stage works including concept design and Transport and Works Act Order preparation and is aligned with the current spend authority.

## Camden Town station capacity upgrade

Forecast completion year

**TBC**

Spend to date (£m)

**10**

Spend authority (£m)

**24**

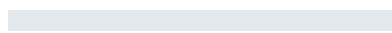
EFC (£m)

**24**

EFC movement post plan (£m)

**0**

2018/19 budget milestone RAG



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

We have completed the over-site development design ready for the planning application submission, which is supported by the London Borough of Camden. To secure all the land required, we have purchased a property on Kentish Town Road and we continue negotiations to purchase the redundant Hawley Infants School. We are exploring opportunities to reduce costs using lessons learned from the wider stations programme.

### Assurance

Project Assurance completed an integrated assurance review on the Major Stations programme submission to the Programmes and Investment Committee meeting in February 2018. A quarterly update was provided to the Committee on 11 October 2018 on the 15 recommendations that were made and accepted, including nine by IIPAG. Seven recommendations are closed and progress is being made to close the remaining eight. Project Assurance tracks progress against the recommendations made, including by 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. Work continues beyond this stage forming part of a wider EFC.

## 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.**

Under the chairmanship of Mike Gerrard, former Managing Director of Thames Tideway Tunnel, the Crossrail 2 Independent Affordability Review panel has reviewed the funding, finance, and cost and risk with the aim of making the project more affordable. The panel submitted an interim report to the Mayor and Secretary of State in the summer. Once they have considered and discussed the report they will decide the next steps.

We will then move to the next stage of development and proceed with further formal public consultation. Meanwhile, the team has been working with Network Rail on a programme of community engagement, including speaking to local stakeholders about level crossings and seeking views that will help us develop our proposals.

We continue to develop and refine the scheme and prepare to provide the government with an update to our business case in anticipation of the next phase of work.

The Bakerloo Line Extension from Elephant & Castle to Lewisham will increase capacity and resilience, reduce journey times and support at least 20,000 new homes in the Old Kent Road Opportunity Area. Following our initial consultation response in mid-February, we published a further response on 12 September 2018. We are now developing the scheme and engaging with stakeholders ahead of a further public consultation.

# London Underground

## Stations

Forecast completion year

**2022/23**

Spend to date (£m)

**1,979**

Spend authority (£m)

**3,141**

EFC (£m)

**2,440**

EFC movement post plan (£m)

**46**

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.**

### Integrated stations programme

We are improving a number of stations, including five that will interchange with the Elizabeth line. Work continues at Liverpool Street and Moorgate stations and will be completed by the end of 2018.

### Station enhancements

At Finsbury Park, we have started to install lifts to make the station step-free. Work has also started on a new passageway linking the existing station to the future western station entrance.

We have completed concept design for the South Kensington station capacity upgrade project and we continue work to appoint a design and build contractor later this year 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. We will start civils works on the lift shaft to the platform next quarter.

The EFC covers all projects, including those completed within the stations programme up to 2022/23. The increase of £76m from Quarter I mainly reflects the inclusion of the stations forecast for 2022/23.





We have started design work to redevelop Colindale station

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We continue the redevelopment and upgrade of Tottenham Hale station. Works to non-customer areas were completed on 7 November and foundation works are planned for completion later in 2018. Works above ground level will follow pending a resolution with the train operating company and Network Rail revenue protection issues.

We have started concept design to redevelop Colindale station and provide step-free access.

### **Developer funded works**

We are working with Berkeley Group to create a new entrance at West Ham station with step-free access between the entrance and Berkeley's development site. The new entrance is critical to the development, which has been granted planning approval to provide retail, office and leisure space, and approximately 3,800 new homes. The detailed design is under way, with work planned to start on site in 2019.

### **Systems**

The customer information systems enhancement project has recently installed new platform displays at locations including Temple, Fulham Broadway, Upney and Amersham. This will provide customers with accurate train information.

### **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 and the Secretary of State. We have been working to reach an agreement with the developer and Southwark Council (Section 106 agreement). As part of the development, a station box will be built to increase capacity at the existing station and provide step-free access to the Northern line.

At Paddington, we are planning to build a new entrance, increase the size of the ticket hall, improve access and provide step-free access to the Bakerloo line platforms. We will do this in partnership with Great Western Developments as part of its redevelopment of an adjacent building, which has been granted planning approval. Demolition works of buildings at street level continues and we are preparing for concept design for the new station entrance.

### **Station capacity**

In July, we awarded the contract for feasibility studies to address capacity issues at Stratford station, the outputs of which are currently being reviewed.

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## 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 11 October 2018 on the eight recommendations that were made and accepted, including three by 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 IIPAG, as part of its continuous assurance.



New lifts provide step-free access at Victoria station

# Accessibility



Forecast completion year

**2022/23**

Spend to date (£m)

**27**

Spend authority (£m)

**244<sup>1</sup>**

EFC (£m)

**197**

EFC movement post plan (£m)

**0**

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 36 per cent of stations accessible by 2020 by providing step-free access at a further 15 stations.**

We have announced the 23 stations that will be step-free by 2022/23. All of these stations are now being designed.

The first of the schemes at Buckhurst Hill became step-free to customers on 4 May 2018 and the completion works continue on site.

Since quarter end, step-free installation works were completed at Newbury Park. The station became step-free on 1 November 2018.

At Harrow-on-the-Hill, detailed design is progressing, with early drainage works planned to start in October to allow construction of the three platform lift towers. The first phase – to provide step-free access to all platforms and to the College Road side of the station – will be completed in early 2020.

The amber milestone RAG relates to the delay in the construction contract being signed. The design and construction programme for South Woodford station has now been re-phased to ensure that step-free access is still delivered by the original date planned.

<sup>1</sup> An increase in programme authority of £98m was approved at the Programmes and Investment Committee on 3 July 2018 to fund the detailed design and delivery of the final 12 stations.

# Track renewals

Forecast completion year

**Annual**

Spend to date (£m)

**52**

Spend authority (£m)

**107<sup>2</sup>**

EFC (£m)

**107<sup>2</sup>**

EFC movement post plan (£m)

**0**

2018/19 budget milestone RAG 

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

This quarter, we have replaced three point ends, 1.7km of ballasted track, 350 metres of drainage and 760 metres of concreted deep track.

We installed three new point ends at Wimbledon during the August Bank Holiday. The points were assembled and fully tested prior to delivery on site, where we used a Kirow crane from Network Rail to lower them into place from a nearby car park. This avoided the need to close the network elsewhere to transport materials.

In August, we replaced the track from South Kensington to Gloucester Road, taking the opportunity to reduce the vertical step between the trains and the platform.

We replaced more than 300 metres in a single weekend between Woodford and South Woodford and at Leytonstone in early September.

During a weekend closure in mid-September, we renewed:

- 160 metres of ballasted, covered track at King's Cross St Pancras. This work was logistically difficult as materials had to be taken to and from the work area along the single bore track being replaced instead of on an adjacent track
- Almost 200 metres from Moorgate to Farringdon. This included the replacement of floating slab track at Barbican, which reduces track noise for nearby residents

We installed almost 500 metres of slab track in the northbound tunnel from Baker Street to Finchley Road on the Metropolitan line to improve reliability, track drainage, reduce maintenance and increase track lifespan.

<sup>2</sup> The spend authority and EFC include £3m for hazardous materials, which was not included in the figures report at Quarter 1.

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The amber milestone RAG relates to a planned renewal of 7.5km of track on the Underground network by 31 March 2019. There have been scope reductions at some sites as a result of low availability of ballast wagons, tamping machines and locomotives, and we forecast to deliver the full 7.5km 14 days after the plan date. We have already identified work from next year's plans, which we are preparing to deliver later this financial year. The post quarter end update is that we have now recovered this delay and will deliver by the target date.

### **Assurance**

Project Assurance completed an integrated assurance review on the Track Renewals programme submission to the Programmes and Investment Committee meeting in February 2018. A quarterly update was provided to the Committee on 11 October 2018 on the seven recommendations that were made and accepted, none by IIPAG. Four recommendations are closed and good progress is being made to close the remaining three. Project Assurance tracks progress against the recommendations made as part of its continuous assurance.

# Power, cooling and energy

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
<b>2021/22</b> <sup>3</sup>	<b>38</b> <sup>3</sup>	<b>90</b> <sup>3</sup>	<b>180</b> <sup>3</sup>	<b>0</b>

2018/19 budget milestone RAG 

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

## Power

Having commissioned power works for the Elizabeth line at Liverpool Street, we are preparing for High Speed 2 power works, such as relocating the substation at Euston.

A strategy to upgrade and consolidate three power control systems that supply power across the Underground network to a single system has been endorsed. The systems remotely monitor and safely operate traction, station, signalling and depot power supplies. The subsequent project will address immediate obsolescence risk.

On the Central line, we have installed the rectifier transformer at South Woodford to provide a more reliable power supply.

We have commissioned high voltage cables at Kilburn Park, Ruislip and Park Royal and the construction of the Greenwich switchroom, which houses the additional power equipment, is almost complete.

We have initiated work to improve power asset condition through a prioritised work bank of projects.

## Cooling

We remain on schedule to complete major tunnel ventilation system upgrade works in late 2018 to mitigate temperature increases in Jubilee line tunnels between Baker Street and Green Park.

The commissioning of the Bond Street ventilation fan is now complete to bring it into use for the start of operation of the Elizabeth line.

The City Road ventilation upgrade has been commissioned, with the remaining works to be delivered by the London Borough of Islington in early 2019.

## Energy

We continue to assess the viability of installing solar panels and other energy conservation measures in our buildings and we are investing in waste heat and low carbon energy projects.

<sup>3</sup> The figures represent the lift and escalator renewals (until 2021/22), and power and energy projects (until 2018/19)



# Rolling stock renewals



Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
<b>2029</b>	<b>189</b>	<b>612<sup>4</sup></b>	<b>1,006<sup>5</sup></b>	<b>(52)</b>

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 27 out of 36 trains and expect to complete the remaining trains by mid-2019.

flooring package. We continue to consider options to maximise efficiency, mitigate risks and complete installation works by March 2023. One initiative under consideration is to use some of our existing fleet of electrified Schoma engineering trains instead of buying new shunting capability.

On the Central line improvement programme, the new traction package contract continues on plan. We have awarded the contract for the saloon CCTV and the contract for LED lighting will be awarded imminently. We are evaluating tender responses for the

On the Jubilee line, 31 refurbished trains out of 63 trains are back in service. The refurbishments include a wheelchair area, new flooring, refreshed interior (including grab-poles and handles), new sealing to the roof and windows.

4 The authority is lower than the EFC as authority is sought in stages. An additional £199m authority was granted by the Programmes and Investment Committee on 21 February, taking the total to £612m.

5 The EFC increase from £988m at Quarter I mainly relates to monies included in 2027/28 for the Northern line fleet extension, in 2028/29 for the Victoria line mid-life refurbishment and the Jubilee line fleet extension and for a new safety requirement for the Central line rail adhesion train.

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We are approaching the mid-point of the detailed design phase for 71 new wagons to support track renewal and maintenance activities.

We are designing and building specialised track renewal vehicles to reduce the cost of deep Tube track renewal and maintenance by automating the renewal process. As part of the concept design phase, an in-house team has created a virtual reality model of a prototype to allow potential hazards to be identified and designed out before the machines are built. We have also identified two trial locations for live testing, which is planned to start in early 2020.

We continue the detailed design of the modular points and crossings delivery system. We have, after an extended period, finalised the modification scope for the supporting tilting wagons, which are required to support the rail mounted Kirow cranes. They will also allow coupling to Network Rail locomotives to collect pre-assembled points and crossings units on National Rail infrastructure.

The tampers are performing well in operation and are expected to be handed over for full operational use from next quarter to carry out complex tandem points and crossings and plain line tamping.

Utility diversion works have been completed at the new train modification facility in Acton, which will be used for overhaul and heavy maintenance of rolling stock and engineering vehicles.

### Assurance

Project Assurance completed an integrated assurance review on the Rolling Stock Renewals programme submission to the Programmes and Investment Committee meeting in February 2018. A quarterly update was provided to the Committee on 11 October 2018 on the eight recommendations that were made and accepted, none by IIPAG. Three recommendations are closed and good progress is being made to close the remaining five. Project Assurance tracks progress against the recommendations made, as part of its continuous assurance.

# Signalling and control



Forecast completion year

**2021/22**

Spend to date (£m)

**63**

Spend authority (£m)

**143<sup>6</sup>**

EFC (£m)

**181**▲

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 with train-based systems 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.**

A contract has been signed by Siemens Mobility for the life extension of the Central line signalling and control systems. Once the design has been finalised we will run a test pilot.

We have commissioned the new Piccadilly line signalling control system at the control centre in west London. Progress is being made towards completing snagging works in the building and the next commissioning, which will migrate control of Acton Town to South Harrow.

Tenders have been returned for the Northumberland Park re-signalling project and evaluation is planned to start in late October, with contract award recommendation expected in December.

## Assurance

Project Assurance completed an integrated assurance review on the Signalling and Control programme submission to the Programmes and Investment Committee meeting in May 2018. A quarterly update was provided to the Committee on 11 October 2018 on the nine recommendations that were made and accepted, including six by IIPAG. Three recommendations are closed and good progress is being made to close the remaining six. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.

<sup>6</sup> Additional authority of £74m was granted by the Programmes and Investment Committee on 3 July, taking the total to £143m for works to 2023/24. Further authority will be sought in the future.



Highbury Corner will be made safer and more attractive

# Surface

## Healthy Streets

Forecast completion year

**2021/22**

Spend to date (£m)

**297**

Spend authority (£m)

**957**

EFC (£m)

**1,821**

EFC movement post plan (£m)

**0**

2018/19 budget milestone RAG 

**The Healthy Streets Approach prioritises health and wellbeing, with the overall objective of delivering 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 is unchanged despite the pedestrianisation of Oxford Street being cancelled by Westminster City Council. This is because the costs saved are being reinvested elsewhere in the Healthy Streets programme, including on projects to improve London’s cycling infrastructure.

### Westminster Bridge South

Construction works to alter the landscaped area around the Park Plaza Hotel to enable a pedestrian link along Westminster Bridge Road are on track for completion by end of December 2018. The main highway works were completed in December 2017.

### Highbury Corner

The construction works to remove the roundabout and replace it with a two way traffic system continues on site. The enabling works are now complete around the arboretum and on the forecourt area outside Highbury & Islington station, with a new pedestrian crossing on Holloway Road. The main works started in October and are scheduled to be complete in autumn 2019. We continue to work collaboratively with the gas provider undertaking emergency gas replacement works in the area, to minimise traffic disruption to the road network and impacts to local residents.

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### **Lambeth Bridge North and South**

We continue to work with Westminster City Council to find a suitable design solution to mitigate concerns over the proposed banned turns at the northern junction, while maintaining benefits to vulnerable road users. The delay in agreeing the concept design has impacted the programme, which means construction is now scheduled to start in mid to late 2020. The concept design for the southern junction is ready to proceed to detailed design. Work to accommodate utilities, trees and protective security measures along with surveys and studies is progressing to enable the designs to move promptly once the concept is agreed.

### **Wandsworth Gyratory**

The purchase of properties on Putney Bridge Road is in progress and targeted for completion in March 2019. The scheme layout in Armoury Way is being reviewed to reduce costs by ensuring all land-take is essential. Initial traffic modelling outputs indicate minimal traffic impacts as a result of the changes, but further work is required to understand the impact for pedestrians and cyclists. We plan to start work on site in 2021.

### **Fiveways**

We have confirmed the preferred alignment for our proposals at Fiveways in Croydon. This minimises the need to buy property and retains the existing A23 bridge, together with a new adjacent bridge structure. A compulsory purchase

order to acquire the essential land is planned to be submitted to the Board for approval in March 2020.

### **Vauxhall Cross**

The Island Site development, located in the middle of our highway and bus station, is due to go to Lambeth Planning committee in December 2018. Subject to them receiving planning permission, we will be able to secure the land required for our improvements through a land swap. Meanwhile, we are finishing the concept design, secured planning permission for the bus station and are preparing the detailed design and construction tender information, which is due for completion in March 2019.

### **Trinity Square**

Works are in their final phase. The new signals at the junction were commissioned on 22 June and the dedicated left turn into Trinity Square is now operational. Final resurfacing and demountable island installation has been delayed due to emergency gas works, but we are anticipating that all works will be completed by mid-November 2018.

### **Waterloo City hub**

We continue to develop the concept design, in response to feedback from public consultation and stakeholders, while working closely with Lambeth Council. The design proposal has been well received at the Independent Disability Advisory Group and the Mayor's London Review Panel. Further

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design work will be undertaken to address feedback, enable various design approvals and a planning application submission in spring 2019. Site surveys of utilities are nearly complete, and the principles for protective security measures have been established. Early contractor involvement has been initiated with the aim of reducing project risk, reviewing buildability of the design, assuring the estimated programme and costs. We expect to start construction works in spring 2020.

### **Old Street Roundabout**

We are continuing to investigate options to accelerate the scheme with our principal contractor. Concept design is substantially complete. We are now seeking approval for detailed design and construction to start in November. We have identified a package of enabling works to begin in late November 2018, ahead of the main works, currently scheduled to start in March 2019. An application for planning approval for the scheme will be submitted to Islington Council in November.

### **Direct Vision Standard**

The Mayor wants to make heavy goods vehicles (HGVs) coming into London safer for vulnerable road users, such as cyclists and pedestrians, to reduce the number of collisions and encourage the uptake in active travel. A request has been submitted to the European Commission to seek their support for our proposals to improve safety across London via the Direct Vision Standard.

### **Surface Intelligent Transport System**

We are leading the way in terms of delivering an innovative new road transport management system that makes journeys on foot, bike, bus, as well as essential emergency services and freight trips, as efficient as possible. We have appointed Siemens to help us take this ambitious project forward to the next stage.

### **Cycle Superhighways**

Following the completion of Cycle Superhighway 6 in late August, the Mayor officially launched the route on 20 September 2018. The project has introduced nine new pedestrian crossings and upgrades to seven existing pedestrian crossings, improved signal technologies at junctions, including energy efficient LED traffic signals, dedicated signals for cyclists at junctions and pedestrian countdowns.

The consultation report for Cycle Superhighways 9 (Kensington Olympia to Brentford), including responses to issues raised is currently being finalised. The concept design is on track for completion in January 2019. Construction of the Hammersmith Gyratory section of Cycle Superhighway 9 is expected to start in early summer 2019, subject to approvals with Hammersmith and Fulham.

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Detailed design for Cycle Superhighway 4 (Tower Bridge to Greenwich) started in early September 2018 and is progressing well, with the response to issues raised planned to be published later this year. Kerb alignment alterations have been finalised for our road section, which will reduce the amount of utility diversions required. Initial stakeholder meetings have also been held in October to review the proposed construction programme while minimising disruption.

Following the completion of the required surveys and investigations, detailed design on Cycle Superhighway 10 and the A40/Western Avenue has now started from Kathleen Avenue to Wood Lane, enabling the first phase of the design to be completed. Detailed design for this section is due to finish in December 2018. Strategic modelling for the remainder of the route began in April and initial results were received in July and are now being analysed.

The Cycle Superhighway 11 (Swiss Cottage to the West End) project team are currently reviewing options for the scheme following the recent High Court decision.

### **Bus stop bypasses**

The project to retrofit zebra crossings onto 43 bus stop bypasses on existing Cycle Superhighways is progressing well with 50 per cent of the detailed designs now complete. Construction of the first five sites will start in early November 2018.

### **Mini-Hollands**

Thirty-two of the Mini-Hollands schemes are complete, including the A105 Green Lanes scheme, a five kilometre protected cycle route linking Enfield Town to Palmers Green. A further 20 schemes are currently under construction, including segregated cycle routes on Wheatfield Way in Kingston, on the A1010 in Enfield and on Lea Bridge Road in Waltham Forest. There are 21 schemes currently going through design and consultation, including a number of Quietway links and Enfield Quieter Neighbourhoods.

Initial post-implementation monitoring of the A105 Green Lanes has shown a 42 per cent rise in cycling along this now protected cycling route, compared to surveys from 2014. We anticipate similar results for the first phase of the A1010 route between Ponders End and Edmonton Green, which will be completed early summer 2019.

There was further success for the Mini Hollands programme in Waltham Forest, which won the Best Healthy Street award for its scheme at Francis Road in Leyton. This has seen a part-time road closure implemented between 10am and 8pm. The 'Enjoy Waltham Forest' scheme also won The Best Healthy Streets Behaviour Change award for its complementary measures programme, which has seen more than 3,000 residents receive free cycle training.





The Central London Cycling Grid encourages more people to cycle

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### Rotherhithe to Canary Wharf Crossing

This project aims to relieve existing transport links, encourage more active travel and support growth in the Canada Water and the Isle of Dogs Opportunity Areas by providing a cross-river connection for pedestrians and cyclists.

We continue with design development work on our provisional preferred option of a navigable bridge. Work is under way with stakeholders to determine a number of key aspects of the crossing, including preferred height, alignment and landing arrangements. This will lead to a second public consultation on our detailed proposals in 2019, which will help inform further development of the crossing ahead of a consents application, also planned for 2019.

### Central London Cycling Grid

We have completed 40km of the 85km Central London Grid network. This includes several sections of Quietway and Cycle Superhighway routes, such as Q13 (Broadway Market to Old Street), Q14 (Blackfriars to Tower Bridge) and Q15 (Earls Court to Belgravia). An additional four kilometres of network is currently under construction, including improvements to Sussex Gardens, which will be complete in December. These routes are due for completion by the end of 2018/19.

The Walking and Cycling Commissioner Will Norman launched Quietway 14, which runs between Cycle Superhighway 6 at Blackfriars and Tower Bridge Road. Improvements along the route include new cycle crossings and improved pedestrian facilities across Borough High Street and Tower Bridge Road. Union Street and Newcomen Street have also been partly closed to vehicles to stop rat running traffic along the Quietway.

A further 65km of potential Quietway routes have been identified and we have been working with boroughs to define more detailed plans. These include important routes such as the link between Cycle Superhighway 2 and 3 in Tower Hamlets, a link between Dalston and Bethnal Green via Queensbridge Road in Hackney and Kensington High Street to Notting Hill in Kensington and Chelsea. The Royal Borough of Kensington and Chelsea have completed consultation on their next Central London Grid route between Kensington High Street and Holland Park. The consultation was supported by more than 80 per cent of respondents. Construction is expected to begin on this route in early 2019.

### Quietways

Following the successful launch of Quietway 2 (east), post-launch monitoring showed that the route was used by 24,000 cyclists in the first week of opening.

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Since launching the eastern and western sections of Quietway 2, six more Quietways have been launched. These include Q3 (Gladstone Park to Kilburn), Q5 (Oval to Clapham Common), Q6 (Wanstead Flats to Barkingside), Q14 (Central London Grid: Blackfriars to Tower Bridge Road), Q15 (Earls Court to Belgravia) and Q22 (Stratford High Street to Newham Way).

Construction is complete or under way on 113km of a potential 250km network of routes.

Construction continues on Q4 (Clapham Common to Wimbledon), Q5 (Clapham Common to Norbury), Q7 (Elephant and Castle to Crystal Palace), Q21 (Wandsworth to Teddington), Q23 (Ealing to Greenford), a Quietway linking Barking town centre to Cycle Superhighway 3, Greenwich to Kent House Quietway, Bermondsey to Catford Quietway and Woolwich to Lee Green Quietway. Wayfinding has been installed across 46km of the Quietway network.

### Safer Junctions

We published a list of Safer Junctions in April 2017, which identified 73 junctions on our roads with the highest vulnerable road user collision rates between 2013 and 2015. We have been considering in detail how to make them safer. We have completed mitigation work at 26 of these junctions to reduce road danger. We are reviewing the completed projects to ensure they have been reduced collisions.

We are taking a further 47 schemes through design, with 15 of these scheduled for construction by spring 2020 (bringing the total to 41 out of the 73 junctions in the programme).

Works started at Charlie Brown's Roundabout in early August 2018 to make the area safer for people walking and cycling. New signal controlled toucan crossings will be installed on all arms of the roundabout, as well as measures including widened footways and central islands to encourage slower speeds at the roundabout and make the area feel less intimidating.

On 19 September, we partnered with Oakdale Junior School to mark the European Day Without A Road Death. This included a Walking Bus and Big Breakfast with 54 pupils who regularly cross Charlie Brown's Roundabout on their way to and from school. The event was a success and particularly poignant for many of the staff who volunteered, following the death of the mother of one of the pupils at the roundabout in 2016.

The extension to Cycle Superhighway 6 was also completed in September 2018, improving safety at two Safer Junctions locations. In addition to segregated cycle lanes replacing sections of traffic and bus lane on Farringdon Road and Farringdon Street, new traffic restrictions were introduced at the junction with Clerkenwell Road to help create better conditions for cyclists.

### **Crossrail complementary measures**

We are working with the boroughs, Crossrail Limited and Network Rail to develop a programme of improvements to 17 stations in outer London that will form part of the Elizabeth line when the full service starts.

So far Crossrail complementary measures to introduce new public places for people to enjoy cycle parking, improved lighting and new pedestrian crossings are substantially complete at six stations (Hanwell, Romford, Chadwell Heath, Goodmayes, Abbey Wood and Manor Park). Site works at eight stations (Ilford, Harold Wood, Gidea Park, Seven Kings, Forest Gate, Maryland, West Ealing and West Drayton) are at an advanced stage. Three stations (Southall, Ealing Broadway and Acton Main Line) are at design/consultation stage.

### **Liveable Neighbourhoods programme**

This is a key part of the Mayor's Transport Strategy, which aims to create locally-led, attractive, healthy and safe neighbourhoods that encourage public transport use and reduce car journeys. The boroughs of Ealing, Greenwich, Hackney, Haringey, Havering, Lewisham and Waltham Forest were all successful in their initial bids for funding and will now develop their proposals to secure implementation funding for their schemes. There will be another round of funding allocation before the end of 2018, when other boroughs will be able to submit proposals for further Liveable Neighbourhoods funding.

### **Borough Local Implementation Plan projects**

Construction of the third phase of the Baker Street two-way traffic infrastructure scheme is ongoing, while construction also continues at Stratford, Beckenham Town centre, Beddington, White Hart Lane, Feltham, and Tottenham Court Road. Works at Bond Street are nearly complete.

Boroughs are working on their third draft Local Implementation Plans, which will be submitted to us for assessment and subsequently approved by the Mayor in early 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 11 October 2018 on the nine recommendations that were made and accepted, including four by 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 IIPAG, as part of its continuous assurance.



The Liveable Neighbourhoods programme aims to create healthier, safer streets

# Air quality and environment



Forecast completion year

**2023/24**

Spend to date (£m)

**153**

Spend authority (£m)

**202**

EFC (£m)

**527**

EFC movement post plan (£m)

**3**

2018/19 budget milestone RAG



**The Air Quality and Environment programme reduces transport's impact on air quality and climate change by targeting vehicles in our contracted and regulated fleets, and all vehicles driving in London.**

## ULEZ update

From April 2019, the central London ULEZ will replace the T-Charge and operate in the same area, alongside the Congestion Charge. Unlike the T-Charge and Congestion Charge, which are only in place on weekdays, the zone will operate 24 hours a day, seven days a week, 365 days a year. In addition to the Congestion Charge, there will be two ULEZ charge levels: £12.50 a day for cars, vans and motorbikes and £100 a day for lorries, buses and coaches.

We have completed the design and development of the core IT system, with development of our website well under way. We have started testing to ensure that the systems integrate correctly, with system integration testing in progress and regression and performance testing to follow in Quarter 3. We are also taking action to ensure we maximise vehicle compliance (to the required standards) and have started a comprehensive communications and stakeholder engagement strategy.

The EFC has increased by £3m and is driven by the ULEZ expansion in 2021 increasing by £4m due to higher transition costs and risk provision as requirements become more refined. This is offset by a reduction in the bus nitrogen dioxide retrofit project of £1m through reduced contract.

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## Fleet compliance

There are now more than 2,200 ULEZ compliant buses (both single and double deck) in service. As a result, more than 80 per cent of the bus fleet travelling in the zone is already compliant with the new emission standards.

We continue to install nitrogen dioxide (NO<sub>x</sub>) abatement equipment on buses. We have completed seven Low Emission Bus Zones with the retrofitted vehicles now contributing significantly lower NO<sub>x</sub> emissions on these corridors. Bus zones completed include:

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

The Edmonton to Seven Sisters corridor is more than 90 per cent complete and the Stratford corridor is 70 per cent complete. In addition to vehicles operating in the ULEZ, we are also retrofitting NO<sub>x</sub> abatement equipment on buses across London. More than 2,000 buses have already been converted, which are directly delivering benefits for the Mayor’s programme to improve air quality. At the National Air Quality Awards in October, the Low Emission Bus Zone programme won Passenger Transport Air quality Initiative of the Year.

## Ultra low emission vehicles (rapid charge infrastructure)

To support the growing number of zero emission capable taxis and the increased use of electric vehicles, we are building a network of rapid charging points across London. We had installed 135 points by 12 October, of which 60 are dedicated for taxis.

We continue to prepare sites for installation, with the number of live sites scheduled to increase to 150 by the end of 2018 and 175 by April 2019. We are also progressing designs for two ‘hub’ sites with multiple rapid charging points and aim to have the first site live by mid-2019.

## Assurance

Project Assurance completed an integrated assurance review on the Air Quality and Environment programme submission to the Programmes and Investment Committee meeting in October 2017. Eleven recommendations were made and accepted, including three by IIPAG. A quarterly update was provided to the Programmes and Investment Committee meeting on 11 October 2018. Two recommendations are closed and good progress is being made to close the remaining nine. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.

# Asset investment



Forecast completion year

**2021/22**

Spend to date (£m)

**203**

Spend authority (£m)

**352**

EFC (£m)

**631**

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.**

## Structures and tunnels investment programme

We achieved a significant milestone in the Ardleigh Green Bridge replacement project with the second half of the new bridge launched over the railway at the end of August 2018.

We are now building the carriageway approaches to the new bridge ahead of the final phase of demolition at Christmas 2018, and plan to open all four lanes to traffic on schedule in spring 2019.

Works continue to build the carriageway approaches to the new bridge at Power Road and the project remains on schedule to be completed in November 2018.

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.



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### **Woolwich Ferry**

We are replacing the three existing ferries with two new ferries that will be more reliable and environmentally friendly. As part of the project, we are also upgrading the mooring facilities. The ferry service closed on 5 October 2018 and the three former ferries were sold to a marine recycling facility.

The two new vessels arrived at Tilbury in early November for crew familiarisation and Maritime and Coastguard Agency approval and certification. Following this, they have been undergoing berth alignment and commissioning trials at Woolwich, testing the integration and operation of the mooring and control systems. On successful completion of the trials, the ferry service is expected to re-open by the end of December 2018.

### **Coaches**

We are working to ensure that Victoria Coach Station is maintained and fit for purpose. This includes a fire system upgrade, improvements to customer information display systems and refurbishment of the existing ticket office.

### **Bus driver facilities**

This project aligns with the Mayor's Transport Strategy by ensuring that the bus network is operationally efficient and reliable.

Good progress has been made since the Mayor announced increased funding for bus driver facilities in February. A total of 10 facilities have been installed to date and a further 10 are planned to be in place by the end of December 2018.

We are currently working to deliver facilities on 42 routes by April 2020. The majority of these new facilities will be standalone permanent toilet units, adjacent to the bus stands where they are required.

### **Assurance**

Project Assurance completed an integrated assurance review on the Asset Investment programme submission to the Programmes and Investment Committee meeting on 11 October 2018. Twelve recommendations were made and accepted, including five by IIPAG. Good progress is being made to close the recommendations. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.

# Public transport

Forecast completion year	Spend to date (£m)	Spend authority (£m)	EFC (£m)	EFC movement post plan (£m)
<b>2022/23</b>	<b>134</b>	<b>268</b>	<b>390</b>	<b>0</b>

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.**

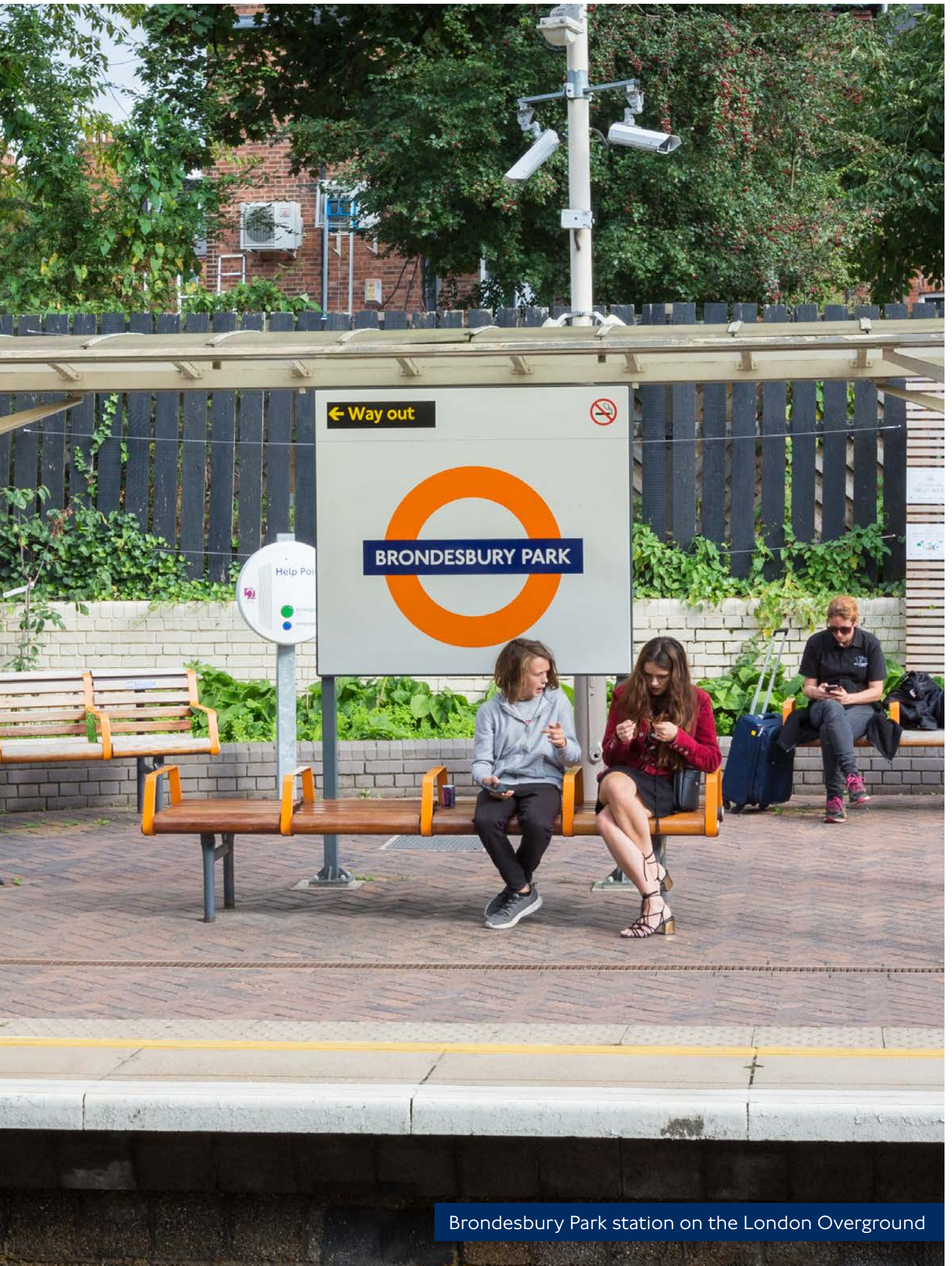
## London Overground

'Access for all' schemes are under way at West Hampstead and White Hart Lane stations. We are also acting as delivery partner to Crossrail to design and construct schemes at seven stations across the eastern and western sections.

In preparation for the introduction of the new London Overground rolling stock, we have extended the platforms on the Gospel Oak to Barking line, installed 'correct side door' equipment on the Gospel Oak to Barking line, all West Anglia lines and the Romford to Upminster line. Works are under way at Willesden depot following award of the contract to electrify the sidings

We have installed the train protection warning system on the sections of the Euston to Watford line that are shared by London Underground and London Overground (National Rail) services. We will install the system on the Richmond to Gunnersbury branch to complete these works and allow us to interchange the fleet between lines and improve reliability across the network.

We continue to discuss a potential scheme at Hackney Central with the London Borough of Hackney, from whom confirmation of a land transfer is required.



Brondesbury Park station on the London Overground

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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.

### **DLR**

We have appointed a contractor to refurbish the CT30 shunter locomotive. The works started in April 2018 and are progressing well. We continue repairs on the B2007 vehicle fleet.

We continue to upgrade the vehicle control centre to simplify the signalling borders around the central section of the railway. This removes conflicts that can occur when trains move from one section to another.

We have completed low-voltage renewal works in the new equipment room at Poplar and we have started works at Royal Albert and Pontoon Dock.

We have appointed contractors for drainage, bridge bearing, structural corrosion, noise barriers and station canopy drainage. Bridge repair works were completed at Abbey Road and fencing works continue, with one site at Canning Town remaining. We have finalised the technical specifications to provide systems that will allow the maintainer to work at height.

Radio resilience and public address system designs were submitted for acceptance and 50 per cent of the ticket-vending machines have been commissioned with new software.

At Limehouse station, the canopy, glazing and escalators have been installed and full testing of the escalators completed. Commissioning works remain before operational use can be granted.

The new roof at Custom House to the mezzanine is now in place – with 30 per cent of the glass panels forming the mezzanine level balustrade remain to be completed. Electrical and communication equipment installations are in progress on the upper level and we have started ceiling cladding works.

We have started works on the London City Airport Visitor Centre and the structural designs have been submitted. We expect the works to be completed in late autumn 2018.

### **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 RAIB. We have completed a number of initiatives and are now currently assessing options for track modifications, tunnel lighting and

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strengthening tram windows. The design of the iTram performance monitoring system is nearly complete, we are evaluating bids for tram emergency lighting and we have started the tender process for a system to physically prevent speeding.

The renewals programme consists of 17 projects across seven asset groups including fleet, power, and permanent way infrastructure.

We are progressing with overhauls of the vehicle hydraulic power units and brake callipers on the CR4000 fleet.

Replacement of the parafil support wires, which hold up the overhead power lines, started in September. We are currently procuring a supplier to help rebalance power within the tram depot to more evenly distribute the supply.

London Trams went cashless in July. The existing ticket machines, which date to the opening of the system, will be removed and the newly available space at our tram stops will provide additional platform capacity, seating and/or information boards, depending on location. We will start removing the machines in December, starting with town centre locations.

In conjunction with removal of the ticket machines, work is under way to improve the visibility and locations of card validators across the tram network to make it easier for customers to see and use them. Working in partnership with the tram operator, designs have been drawn up to provide additional validators and/or adjust the location of existing validators at a number of tram stops. These improvements will be phased, starting with East Croydon later this year.

Work to reinstate automated operation of the points at East Croydon tram stop has progressed through Quarter 2 and is nearly finished, with functional completion expected by December of this year. This will improve local operations at East Croydon and increase the resilience of the tram network, particularly in the town centre.

A revised programme for completing the outstanding works at Wimbledon is currently awaited from Network Rail.

Detailed design for the replacement of two Victorian bridges at Blackhorse Lane has been completed by Morgan Sindall and is under review. Most of the construction work is scheduled to take place in 2019, with the work forecast for completion in 2020.

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### Sponsored services

The cycle hire renewals programme includes payment software, on-street equipment, bike replacement, docking station relocation and map updates.

All 775 terminals are being upgraded, enabling customers to use their contactless bank card, rather than chip and pin. The new system will accept all major UK and international cards, making hiring a bike quicker and easier.

The current payment solution support contract expires in November 2018. We have identified the desired replacement solution and have almost finished the detailed design for the new on-street keypads and payment software.

### Buses

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 will be a safety specification that will be 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 the 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.

### Assurance

Project Assurance completed integrated assurance review on the Public Transport programme submission to the Programmes and Investment Committee meeting in December 2017. A quarterly update was provided to the Committee on 11 October 2018 on the eight recommendations that were made and accepted, none by IIPAG. Four recommendations are closed and good progress is being made to close the remaining four. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.



London streets support a number of transport modes



We have updated our Oyster programme



# Other

## Technology and data

Forecast completion year

**2019/20**

Spend to date (£m)

**24**

Spend authority (£m)

**168**

EFC (£m)

**150**

EFC movement post plan (£m)

**18**

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

We updated contactless functionality in our Oyster and Contactless apps to enable customers to add a contactless card to their account in August 2018.

The technical readiness for deploying weekly capping for Oyster customers was completed in September 2018. This is dependent on completing our negotiations on acceptance with the train operating companies.

### Enterprise resource programme

We plan to move away from expensive investment programmes every five to eight years by upgrading our desktop hardware and software with a more ‘evergreen’ model of continually refreshing and updating. This will lower our overall cost of ownership and reduce operational risks associated with technology obsolescence. It will also support our smart working initiatives and enable employees to work more flexibly.

### Evergreen programme

To better manage project dependencies and risks, the Modern Desktop, Windows 10, Skype for Business, Azure Mobile Components and Office 365 deployment projects have been moved to a single programme – Evergreen.

EFC is for the financial years 18/19 and 19/20. EFC is net of the Data Centre Consolidation Fund Credit of £16.75m, which is included in the spend authority amount.

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We have completed the initial build of Windows 10 and Office Pro Plus and tested it on thick clients. These have been deployed to 60 early adopters within Technology and data. The first 100 Windows 10 laptops were successfully deployed to the smart working pilot users.

We have started migrating business critical and the top 40 launched applications (total of 173) to Windows 10, with three identified for de-commissioning. We also continue to roll out multi factor authentication software to replace the remote secure access token fobs for remote connectivity to our network. So far, more than 9,000 users have been enrolled.

### **Content and collaboration**

A new blog has been setup on WordPress Software as a Service, with the look and feel updated to reflect our internal identity. This replaces a bespoke London Underground blog, which was custom built for us more than 10 years ago and was no longer fit for purpose, with expensive support costs. We have trained bloggers and administrators and the new blog launched successfully to staff at the end of August.

SharePoint Legacy Consolidation assessment of the current estate is complete and ready to progress to the next stage of migration. We have a SharePoint estate that includes a significant number of sites and content in older versions, which presents significant, cost, complexity and risk.

### **Operating and monitoring systems**

The topographical assessment is a test for those who want to become licensed London private hire drivers approved to operate by us.

Working in collaboration with two external suppliers we have delivered a new Taxi and Private Hire Online Assessment Tool. This replaces the paper-based test with an online assessment. It will be used by eight test centres in London to assess approximately 350 taxi and private hire drivers per week. The new system requires less manual effort to score and audit, creating a fair, consistent and cost-effective testing experience. One test centre is live, with two more scheduled by mid October 2018.

We have installed 6,000 buses with new equipment under the surface radio replacement project.

As part of the Future Bus System project, a contract has been signed with Trapeze UK for the replacement system of our obsolete bus scheduling tools: busnet, SSTT and Caesar. This will provide an efficient platform for capturing bus service changes and disruption information. The new software and tools will ensure we continue to run a reliable, accessible and high-quality bus network across London.

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## Hosting – data centre rationalisation and cloud migration

Work is under way to cut the cost of hosting by reducing the size of our primary data centre by two thirds. We continue to develop a hybrid hosting operating model, in which we have extended our data centre core capabilities into the public cloud, AWS and Azure. We are expanding these capabilities to deliver stronger governance, operational controls and cost transparency to yield additional efficiencies.

With the successful pilot migration of four applications from on-premises to the public cloud and the build out of the enterprise service hub for managing these services, we have implemented the foundations of a centralised hybrid hosting operating model. Future expansion of these capabilities is under way, which will deliver stronger governance, operational controls and cost transparency to bring about further efficiencies.

## Cyber security

As part of adopting the European Union directive on security of networks and information systems, known as the NIS Directive, into UK law, we have been identified as the Operator of Essential Services across a number of transport capabilities we deliver. The network and information systems underpinning these services need to be assessed as part of this legislation. We have worked with the Department for Transport and the National Cyber Security Centre to

conduct a pilot of the Cyber Assessment Framework across two of the systems within NIS scope, working collaboratively with the competent authority to refine the assessment approach.

## Data and analytics

We have built the capability to store Elizabeth line asset data, providing the ability to do future analysis of data once trains are in service.

We are providing analytic services that underpin London Underground's Visualisation programme. We continue to work with the performance analysis and improvement programme and have created various reports and system changes in the past quarter.

## Networks

We transitioned the management of our largest above-ground network from the Fujitsu Core IM contract to our new strategic agreement with Capita on 9 August 2018. This was completed with very minor disruption to two low-criticality sites. Work has started on implementing the new core network, and we are on track to migrate the first pilot sites to the new network before the end of 2018.

We signed a four-year contract (extendable to seven) with Thales for continued support of the services currently provided under the Connect private finance initiative. This new contract will enable us to keep the Connect radio and fixed

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telecommunication system running without any breaks, which is essential for the operation of the Underground. It will also provide the technology upgrades urgently needed to bring the system up to date. It will reduce our operating costs on Connect to less than half of what we pay today, down nearly £40m per year, and will provide the upgrade of the radio system.

The deployment of infrastructure to support the Home Office's nationwide Emergency Service Network programme continues. Within the 422km of in-scope tunnels, we have now installed fibre optic cable in 173km and placed leaky feeder in a temporary position in 251km (of which 30km has been fixed into its final position). Cabling works at the first 25 stations is 70 per cent complete. The current phase of delivery will complete in December 2018, by which time we will agree funding with the Home Office for the next phase.

#### **Contact centre operation**

The contact centre operation replacement project is now complete. This included the delivery of a secure reporting solution, which also meets all the data retention and the new GDPR requirements.

We have decided to extend the self-serve telephony contract until June 2020. This aligns the contract end to the telephony touchtone contract, which we planned to achieve savings by merging the two contracts when we re-tender.

In view of issues with the Baker Street site, we have been seeking a suitable alternative site for the Lost Property Office. One has now been identified that meets accessibility requirements. We are preparing to test the market for a cheaper operating model.

After a successful tender process, we have now awarded outsourcing of all Oyster correspondence/email enquiries at a saving of £95k per annum.

#### **Assurance**

Project Assurance completed an integrated assurance review on the Technology and Data programme submission to the Programmes and Investment Committee meeting in February 2018. A quarterly update was provided to the Committee on 11 October 2018 on the 11 recommendations that were made and accepted, including seven by IIPAG. Six recommendations are closed and good progress is being made to close the remaining five. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.



We have completed our contact centre replacement project

# TfL Growth Fund



Forecast completion year

**2021/22**

Spend to date (£m)

**0**

Spend authority (£m)

**200**

EFC (£m)

**200**

EFC movement post plan (£m)

**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 Greater London Authority.

## Sutton Tram extension

A detailed option selection process is under way and we have identified a shortlist of potential options. We will assess these in detail ahead of a public consultation planned to start in the autumn, which will inform a preferred option. Subject to confirming a full funding package, we plan to submit a Transport and Works Act Order application by early 2020.

Programme authority of £200m was approved by the Programmes and Investment Committee on 28 June in Quarter 1 2018/19. There has been £400k spent on Walthamstow Central.

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### Shortlisted schemes

We made recommendations to the Programme and Investment Committee in December to make a contribution to support four schemes that met our agreed criteria. These are:

- An upgrade at Elmers End station to provide double tracking, and a second platform to support growth along the London Trams network
- 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 Greater London Authority to select the next set of projects to receive Growth Fund support and to seek funding for some 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 11 October 2018 on the 11 recommendations that were made and accepted, including four by IIPAG. Good progress is being made to close the recommendations. Project Assurance tracks progress against the recommendations made, including by IIPAG, as part of its continuous assurance.

# Elizabeth line



## On-network stations improvement programme

Forecast completion year

**2019**

Spend to date (£m)

**55**

Spend authority (£m)

**94**

EFC (£m)

**94**

EFC movement post plan (£m)

**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.**

On the Great Eastern section, lifts have been installed and tested at Maryland, Manor Park and Seven Kings ahead of opening for customer use. All testing at Manor Park and platforms 1, 2 and 3 at Maryland was completed at the end of July 2018. We are aiming to complete the bridge structures and bring the lifts into use by winter 2018, by continuing to work with the contractor and manage slippages.

On the Great Western section lift design works at Hanwell, Iver, Langley and Taplow are continuing and IDCs (80 per cent design checks) were completed in June 2018. Site mobilisation has started, with construction due to start in autumn 2018.

MTR Crossrail is continuing its station refurbishment programme. The platform canopies at Chadwell Heath and Goodmayes have been repaired and decorated and 200 new benches have been installed at TfL Rail stations along the Elizabeth line route.

Since summer 2018, new waiting shelters have begun to be installed at stations on the Great Eastern section. Work will also begin to refurbish the station buildings on the Great Western section that are not being upgraded by the Crossrail project and design for these works is progressing well.



## Rolling stock

Forecast completion year

**2019**

Spend to date (£m)

**912**

Spend authority (£m)

**1,149**

EFC (£m)

**1,035**

EFC movement post plan (£m)

**138**

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.**

Class 345 seven-car trains are operating on the TfL Rail service between Liverpool Street and Shenfield, and between Paddington and Hayes & Harlington.

Testing of the Class 345 units fitted with the European Train Control System, needed for operation to Heathrow Airport, has continued. Class 345 trains are also being used for dynamic testing of the central tunnel section of the Elizabeth line, the intensity of this testing will increase, with more trains being used.

Signalling and train software is being updated progressively to improve reliability ready for the Elizabeth line entering trial operations and passenger service in the central sections next year.

The new depot at Old Oak Common is fully operational and is being used for driver training and as the base for Class 345 fleet.

The EFC has increased by £18m this quarter, due to the accelerated rolling stock production prior to the sale and lease back of the rolling stock fleet.



We are look at a revised construction schedule for the Crossrail project

# Crossrail

## Crossrail

Forecast completion year

**2019**

Spend to date (£m)

\*

Spend authority (£bn)

**15**

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.**

On 31 August, Crossrail Limited announced that it would not meet the December 2018 opening date for the central section of the Elizabeth line and that the central tunnelled section (between Paddington and Abbey Wood) is expected to open in autumn 2019. The Department for Transport and ourselves, as joint sponsors, have commissioned independent reviews into Crossrail Limited's schedule and financing to ensure it is robust and into its governance. These are being undertaken by KPMG and the outcomes will be published when they are complete.

A revised schedule is needed to complete construction, which then allows for full testing and commissioning. The focus remains on opening the full Elizabeth line – from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east – as soon as possible after the central tunnels open.

\* This information is withheld for reasons of commercial sensitivity.

# Appendix

## 2018/19 Budget milestone performance

The TfL 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
<b>Major Projects</b>			
<b>Four Lines Modernisation</b> <span style="color: yellow;">■</span>			
Train services on Hammersmith & City line use new signalling system between Hammersmith and Latimer Road	21-Oct-18	23-Sep-18	<span style="color: yellow;">■</span>
Train services on Hammersmith & City line use new signalling system between Ladbroke Grove and Paddington	18-Nov-18	21-Oct-18	<span style="color: yellow;">■</span>
Post quarter end update: Due to a signalling software issue identified during summer 2018, we have not met the milestones above. We have completed an in-depth review of the software to ensure any risk that could impact the reliability and operating of the network is minimised prior to commissioning. It is most likely that both the milestones will fall in quarter one of the calendar year 2019, but due to the requirement of network closures for commissioning we are conducting a full schedule review to ensure minimal impact to customers. Timetable data will not be impacted.			
<b>Deep Tube Upgrade programme</b> <span style="color: green;">■</span>			
Preferred bidder for new Piccadilly line rolling stock contract determined	12-Jul-18	15-Jul-18	<span style="color: green;">■</span>
Tenders returned for signalling and train control contract	15-Mar-19	26-Oct-18	<span style="color: green;">■</span>
<b>Network extensions</b>			
<b>Northern Line Extension</b> <span style="color: green;">■</span>			
Nine Elms station civil works complete	26-Sep-18	25-Sep-18	<span style="color: green;">■</span>
Kennington station cross passage civil works complete	17-Sep-18	17-Sep-18	<span style="color: green;">■</span>

Milestone description	Plan date	Actual/ forecast date	Status
<b>Silvertown Tunnel</b> ■			
Preferred bidder selection dependent on national government support	28-Jan-19	01-May-19	■
<p>Q1: 93 days late ■</p> <p>Q2: 93 days late ■</p> <p>The contract award has been delayed by five months until July 2019 as additional ground investigation surveys had to be done. However, the remaining land surveys were delayed due to the development consent order postponement affecting private land access, which resulted in an increased time to complete arrangements. Surveys are now complete and will inform the bidders' final technical submission, which is expected at the end of January 2019. The first stage of technical submissions were delivered in July and we are evaluating them.</p> <p>This delay will directly impact the selection of preferred bidder status, which moves the current forecast date from November 2018 to May 2019. The programme will be clarified once the bids are returned.</p>			
<b>Barking Riverside Extension</b> ■			
Early works contract – completion of all early works	27-Jul-18	20-Jul-18	■
Main works contract – supplier evaluation and award recommendation complete	18-Jul-18	31-Jan-19	■
<p>Q1: 197 days late ■</p> <p>Q2: 197 days late ■</p> <p>The GRIP 5 signalling design, low voltage power and other design elements were not completed on time to support the invitation to tender issued on 13 April 2018. To avoid delaying the major works contract tender documents, the GRIP 5 signalling design was issued in advance. Both bidders requested an extension of four weeks to the tender period to review the designs issued after the ITT date, which was granted.</p> <p>Overhead line electrification switch works planned for Christmas 2018 will be impacted by late award of contract due to reduced mobilisation time for the successful main works contractor. These works are being procured as a separate package to mitigate the impact to completion dates.</p>			
<b>Major stations</b> ■			
Bank station: preparatory power works complete to allow the start of tunnelling for new escalators	03-Oct-18	15-Aug-18	■
All Victoria station passenger facilities available for use	03-Dec-18	15-Oct-18	■
Bakerloo line link passage ready for Crossrail trial running	30-Nov-18	27-Nov-18	■

Milestone description	Plan date	Actual/ forecast date	Status
<b>London Underground</b>			
<b>Stations renewals and enhancements</b> ■			
Improvement works complete at Underground stations that interface with the Elizabeth Line	09-Dec-18	15-Nov-18	■
Finsbury Park is a step-free station	20-Mar-19	31-Dec-18	■
<b>Accessibility</b> ■			
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	■
<p>Q1: 24 days late ■</p> <p>Q2: 4 days late ■</p> <p>Milestone achieved post quarter end on 1 Nov.</p>			
South Woodford is a step-free station	15-Mar-19	09-Aug-19	■
<p>Q1: 14 days late ■</p> <p>Q1: 147 days late ■</p> <p>Additional site constraints have been identified for the station access ramps. The constraints identified have impacted the design programme and have caused delays</p>			
<b>Track renewals</b> ■			
Install 7.5km of new track across the Underground network	31-Mar-19	14-Apr-19	■
<p>Q1: On time ■</p> <p>Q2: 14 days late ■</p> <p>The 14 day delay has been caused by the low availability of TransPlant ballast wagons, tamping machines and locomotives.</p> <p>A recovery plan has been implemented post-quarter end to maximise access, mobilise additional crews and secure materials. We are confident that it will be in place next quarter and that the milestone will be achieved before the year-end target date.</p>			
<b>Rolling stock renewals</b> ■			
75 per cent of Bakerloo line fleet refurbishment works complete	31-Dec-18	24-Oct-18	■
50 per cent of Jubilee line fleet mid-life refurbishment works complete	31-Dec-18	07-Nov-18	■

Milestone description	Plan date	Actual/ forecast date	Status
<b>Surface</b>			
<b>Healthy Streets</b> ■			
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-Sep-18	■
Old Street roundabout – start advance works on site	22-Feb-19	12-Nov-18	■
Mini-Hollands – 4.5km of segregated or semi-segregated cycle route across Kingston, Waltham Forest and Enfield complete	31-Mar-19	31-Mar-19	■
Cycle Quietways Borough – construction of 25km of the total 250km completed in 2018/19	31-Mar-19	31-Mar-19	■
Liveable Neighbourhoods – feasibility stage complete for three of the seven boroughs that received feasibility funding in 2017/18	31-Mar-19	31-Mar-19	■
Highbury Corner gyratory – start construction	31-Aug-18	28-Jun-18	■
Highbury Corner bridge – construction complete	31-Aug-18	13-Jul-18	■
<b>Air quality environment</b> ■			
Bus retrofit – Four Low Emission Bus Zone routes complete: <ul style="list-style-type: none"> <li>• A2 Camberwell – New Cross</li> <li>• A3 Wandsworth – St John’s Hill</li> <li>• A5 Edgware Road</li> <li>• Edmonton – Seven Sisters</li> </ul>	31-Mar-19	03-Mar-19	■
<b>Growth fund</b> ■			
Sutton Tram extension – consultation launch	30-Nov-18	30-Nov-18	■
<b>Technology and data</b> ■			
Heathrow extension – extension of Oyster and contactless acceptance to Heathrow	27-Jul-18	27-Jul-18	■
Future Ticketing Programme 4 – delivery of weekly capping for Oyster customers	21-Dec-18	21-Dec-18	■
Ticket vending machine – new ticket vending machines to support Elizabeth line central service installed and ready for operation	31-Dec-18	31-Dec-18	■

Milestone description	Plan date	Actual/ forecast date	Status
<b>Commercial development</b> ■			
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	■
<b>Q2: 123 days late</b> ■			
<p>The Home Office, which is part funding this project, requested a change to the scope of the project. Subsequently a second change request was received adding additional delays. Our Executive Committee also requested additional financial modelling, which extended the time required to prepare the business case required before the tendering exercise could continue.</p> <p>The ITT was delayed, which delayed the procurement process for the preferred supplier and subsequent contract signature.</p> <p>We are reviewing the different investment models to be considered at the Exco Investment Committee in November 2018. Following its decision, the programme will be re-profiled. In the meantime, the early procurement activity has progressed well and the results of the SSQ will be announced shortly.</p>			
Submit planning application – Kidbrooke	04-Feb-19	26-Oct-18	■
Submit planning application – Blackhorse Road	29-Mar-19	17-Aug-18	■
<b>Elizabeth line integration</b>			
<b>Rolling stock</b> ■			
Elizabeth line passenger services start on central section between Paddington and Abbey Wood	Dec-18	Autumn 2019	■





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## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** Independent Investment Programme Advisory Group  
Quarterly Report

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### **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 new 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 Audit and Assurance Committee.
- 3.2 The Quarter 2 IIPAG Report is the first produced by Alison Munro, the newly appointed IIPAG Chair. Given the short time since the last IIPAG Quarterly report in September 2018, her report is focused on providing an update on the recruitment of new IIPAG members and early consideration of the future direction and scope of IIPAG.
- 3.3 There are no new recommendations in the IIPAG Quarterly Report.

#### **4 Management Response**

##### **IIPAG Members**

- 4.1 The contracts with four IIPAG members (Colin Porter, Terry Fitzgibbon, Paul Jenkins and Mike Woods) ended on 31 October 2018. They took part in the Sub-programme reviews planned for submission to this meeting of the Committee.

##### **Effectiveness of the First and Second Lines of Project Assurance**

###### **Integrated Assurance Plans**

- 4.2 The format and content of the Integrated Assurance Plans was reviewed by IIPAG for its Quarter 1 Report. All Integrated Assurance Plans are now agreed with the sponsor and project teams and reviewed every quarter by the Project

Assurance team as part of its Continuous Assurance. The plans are also approved by the Head of Project Assurance.

#### IIPAG Recommendation Tracking

- 4.3 The process to track the recommendations made by IIPAG and Project Assurance has been strengthened. Project teams are now required to explicitly state whether each recommendation is agreed or not agreed. The Project Assurance team tracks the progress against the recommendations as part of its continuous assurance, enabling any trends to be identified.
- 4.4 The number of overdue recommendations has decreased from 45 to 21 since the last report, a reduction of 54 per cent. The IIPAG analysis records the recommendations against the original baseline date. A revised date for closing each of the 21 recommendations has been agreed with Project Assurance. Of these, four recommendations are tracking late against the revised target dates.
- 4.5 The project teams have been advised that IIPAG tracks progress against the original dates and reports on overdue recommendations to the Audit and Assurance Committee and this Committee.
- 4.6 The previous IIPAG Quarterly Report (September 2018) also highlighted eight recommendations that it considered to be not agreed. One was a duplicate and only one now remains not agreed. A detailed status report for the eight recommendations is included in Appendix 1.

## **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 outstanding actions against those recommendations include recruitment and establishing a TfL-IIPAG Memorandum of Understanding (MoU). The IIPAG Quarterly Report provides an update on recruitment, with four new members expected to join the group by the end of December 2018. TfL will arrange an introductory briefing session for the new members, including introductions to Committee Members for the New Year.
- 5.3 The MoU will also be developed with IIPAG in the coming months once the new model for IIPAG has been established.

#### **List of appendices to this report:**

Appendix 1: Detailed status of each un-agreed IIPAG recommendation.  
Appendix 2: IIPAG Quarterly Report (November 2018)

#### **List of Background Papers:**

None

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**Appendix 1 – Status of IIPAG Recommendations referred to in Appendix 1 of IIPAG September Quarterly Report**

	<b>Project Name</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>IIPAG view (September IIPAG report)</b>	<b>Status (12 November 2018)</b>
1	Major Stations Sub-Programme	No further Supplemental Agreements or CAP arrangements are put in place until a detailed review of them has been undertaken which identifies any benefits that may have accrued from them and sets out their risks and disadvantages.	CAP is embedded in TfL standard forms of NEC3 contract. Any future Supplemental Agreements in this programme will consider the benefits that will materialise before seeking approval. This approach has been reviewed by IIPAG.	IIPAG remains of the view set out in its recommendation.	Agreed. A benefit analysis report for CAP has been produced for IIPAG review and was sent on 29.11.18. The report indicates that of the 15 CAP referrals that made clear recommendations, 9 were in favour of TfL. The average cost of administering CAP was £3k, far lower than that for adjudication.
2	Major Stations Sub-Programme	The mechanism for escalating risks associated with claims is clarified and communicated to ensure that it provides appropriate information at all levels in TfL.	A general TfL Dispute Management process is available on the Commercial Toolkit. However a specific strategy for each program will be developed as disputes arise. This may need to remain confidential and have restricted circulation to avoid prejudice.	IIPAG has not been provided with the stated information from the Commercial Toolkit and, in its interviews, no individual was aware of any defined process.	Agreed. The strategy for each existing claim has been developed. The strategies were reviewed as part of the Major Stations sub-programme review just completed for the December Programmes and Investment Committee submission with full participation of IIPAG.

	<b>Project Name</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>IIPAG view (September IIPAG report)</b>	<b>Status (12 November 2018)</b>
3	Major Stations Sub-Programme	No further Supplemental Agreements or CAP arrangements are put in place until a detailed review of them has been undertaken which identifies any benefits that may have accrued from them and sets out their risks and disadvantages	<p>The benefits of the Supplementary Agreements are summarised below:</p> <ol style="list-style-type: none"> <li>1. compensations events to date are agreed;</li> <li>2. specific contentious issues are identified and plan of action agreed; and</li> <li>3. contractors are incentivised using KPIs to deliver to set milestones beneficial to passengers.</li> </ol> <p>Any Supplemental Agreement would have the advantages and disadvantages set out, including the risk opportunities and threats.</p>	IIPAG remains of the view set out in its recommendation.	Duplicate of recommendation 1 above.
4	Fiveways Junction A23/A232	That the Project Team provides the evidence to support its view that the current scheme is the appropriate option to select.	The Project Team feels that sufficient evidence has been provided as part of the IAR that supports the view that the current scheme is the appropriate option to select.	No further information beyond that provided for the IAR received by IIPAG.	Not Agreed. The Project Team have supplied all the available information including Business Case to support the option selection. No further action planned.

	<b>Project Name</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>IIPAG view (September IIPAG report)</b>	<b>Status (12 November 2018)</b>
5	Access Network and WAN Services	There should be an independent review of the capex costs included in this contract. TfL's costs to manage this contract effectively should be estimated and also be subject to independent review.	TfL have no issue with sharing the Financial Model that underpins the preferred bidder's tender and capex cost broken down, the purpose of such a review is unclear.	No further information of any independent review received by IIPAG.	Agreed. The contract has now been awarded to Capita. The Financial Model has been provided to IIPAG for review.
6	Cycle Superhighway 10	HSPB should consider the wider options for access to the rest of the Cycle Superhighway network from the West of London, for example considering whether routes might need to be linked such that there are fewer routes in more central areas.	Alignment of CS10 runs along 2 strategic cycling corridors identified in the Strategic Cycling Analysis (June 2017). Opportunity for further routes in future to link other key destinations. Future Cycle Routes programme submitted to Healthy Streets Portfolio Board 5 Oct 2017.	IIPAG does not believe that the issue was addressed in the Future Cycle Routes programme submission and has received no further information on this recommendation.	Agreed. The sponsor has now provided further information relating to future cycling routes which demonstrates the linkages between routes. IIPAG response pending.

	<b>Project Name</b>	<b>Recommendation</b>	<b>Management Response</b>	<b>IIPAG view (September IIPAG report)</b>	<b>Status (12 November 2018)</b>
7	Rotherhithe Canary Wharf Crossing	IIPAG recommends that the option selection is deferred until greater certainty can be provided of the likely cost and programme of the navigable bridge and a comparison can be made on a more informed basis of the business case underlying both options	Substantial work has gone in to the options analysis work based on benchmarking data to determine the preferred option. However, a reference design is required to establish a preferred bridge design and to narrow the cost range of the scheme. This will be subject to consideration by IIPAG and by the Healthy Streets Portfolio Board.	IIPAG understands that the bridge option is preferred by TfL and work on finalising cost estimates and seeking to close the significant budget shortfall continues, but the option of a ferry crossing has not yet been discounted.	Agreed. Superseded by latest Integrated Assurance Review (September 2018) and more recent recommendations made by IIPAG.
8	Rail and Underground Step Free Access	Any works not directly necessary for the SFA scheme be funded and managed outside of the SFA Programme.	Funding: Not agreed. We have committed to fund the wider Accessibility Works as part of the Whole Journey approach to accessibility.	IIPAG agrees with TfL's response.	Closed.



# Independent Investment Programme Advisory Group – Quarterly Report (November 2018)

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## This paper will be considered in public

### 1 Summary

- 1.1 In light of the short time since the last IIPAG report, there are no new systemic and strategic issues and risks to report from IIPAG reviews. Instead, this report provides an update on recruitment of the new IIPAG members, and early consideration of the future direction and scope of IIPAG.

### 2 Recommendation

- 2.1 There are no new recommendations.

### 3 Recruitment

- 3.1 Following final interviews conducted by Anne McMeel, Nelson Ogunshakin and Alison Munro, offers have been made to 3 new IIPAG members. We are hoping to get them on board as soon as possible. They bring a mix of expertise in project and programme delivery, assurance, commercial negotiations, procurement, and railway signalling and systems integration.
- 3.2 While this is good progress, we have a gap in civil engineering expertise, and will be seeking to address that as quickly as possible through further IIPAG recruitment. We will also need to establish a pool of experts whom we can call on for specific areas of expertise as needed, as recommended by the TC Chew Review (2017).

### 4 Future direction of IIPAG

- 4.1 The new Chair of IIPAG, Alison Munro, has been meeting some members of the TfL Board and the Executive to get an understanding of the business and how IIPAG can add most value. There will be further discussion with the Board and Executive once the new IIPAG members are on board, but some early themes are set out below.
- 4.2 There is a universal desire to see IIPAG succeed, both in providing effective third level assurance, and in being a supportive ‘critical friend’ to management. In terms of the scope of IIPAG’s work, there is an appetite for more cross programme strategic reviews, with potential areas including organisational capability, the application of the Pathway process, and cost estimating. There is also a need to ensure that IIPAG continues to provide in-depth reviews where appropriate. We will wish to consider the scope for a more risk based approach to prioritising IIPAG reviews of programmes and projects. In terms of how IIPAG operates, the importance of integrating the work of IIPAG with internal assurance and governance has been emphasised.

## 5 Reviews and Actions

- 5.1 IIPAG has been involved in a total of four sub-programme reviews and nine Integrated Assurance Reviews since its last report (14 September). These are listed in Table 1 below.

Sub-Programme Reviews	Integrated Assurance Reviews
Major Stations	High Speed 2
Public Transport	Rotherhithe to Canary Wharf
Air Quality and the Environment	Sutton Link
Northern Line Extension	72 Tube Stock Weld Repairs
	Central Line Improvement Programme
	Surface Intelligent Transport System
	Mini Hollands
	Asset Resilience
	Parliament Square

Table 1: IIPAG Involvement in Assurance Reviews

- 5.2 Figure 1, below, sets out the number of recommendations that are Closed, not yet due (or no date noted) or Overdue (from original baseline date) in the recommendations tracker maintained by Project Assurance.

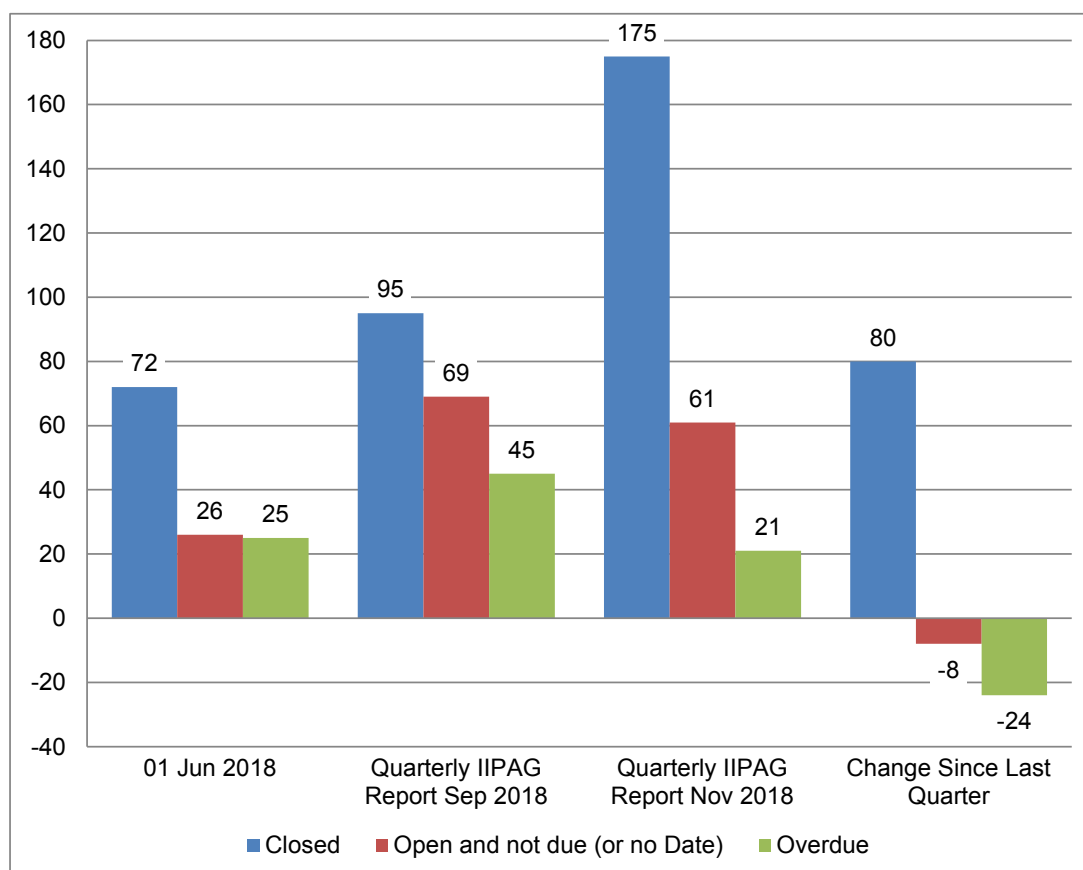


Figure 1: Status of IIPAG Recommendations

- 5.3 The total number of recommendations has increased from 209 to 257 between 3 August and 31 October, with a total of 48 new recommendations made.

- 5.4 There has been a decrease in the number of overdue recommendations from 45 to 21 in the last quarter (54% reduction).
- 5.5 The previous IIPAG Quarterly Report from September 2018 highlighter eight recommendations that we considered not to be agreed. Project Assurance has worked with the sponsor and delivery teams to provide an up to date commentary on each, which is included in the Management Response to this report.

**List of appendices to this report:**

None

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## Programmes and Investment Committee

**Date:** 11 December 2018

**Item:** Use of Delegated Authority

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**This paper will be considered in public.**

### **1 Summary**

- 1.1 To inform the Committee of the use of Chair's Action and of Programme and Project Authority and Procurement Authority (in respect of matters within the Committee's remit) granted by the Commissioner and the Chief Finance Officer in accordance with delegated authorities under TfL's Standing Orders since the last meeting of the Committee on 11 October 2018. A similar report will be submitted to the Finance Committee in respect of the use of Chair's Action and of Procurement Authority and Land Authority granted by the Commissioner and the Chief Finance Officer in respect of matters within the Finance Committee's remit.
- 1.2 Since the last meeting of the Committee, the only uses of delegated authority relate to the use of Chair's Action in relation to the Northern Line Extension, as set out in Appendix 1 and Procurement Authority approved by the Chief Finance Officer as set out in Appendix 2.

### **2 Recommendation**

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

### **3 Background**

- 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 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.
- 3.3 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.
- 3.4 The Commissioner (and in his absence, the Chief Finance Officer) has delegated authority to approve budgeted Procurement Authority up to a value of £100m.
- 3.5 The Chief Finance Officer has delegated authority to approve budgeted Procurement Authority up to a value of £25m.

## **4 Use of Chair's Action since 11 October 2018**

- 4.1 Since the last meeting of the Committee, there has been one use of Chair's Action.
- 4.2 On 23 October 2018, all members of the Committee were sent a paper seeking approval to enter into Heads of Terms relating to the Northern Line Extension project between TfL and Battersea Power Station Holding Company Limited (BPS). On 24 October 2018, following consultation with all members of the Committee, the Chair approved the recommendations in the paper.
- 4.3 The use of Chair's Action was considered appropriate as TfL wished to secure agreement to the Heads of Terms with BPS at the earliest opportunity and BPS needed agreement of the matters in question ahead of the next meeting of the Committee on 11 December 2018 in order to secure the necessary funding.
- 4.4 Further information is provided in the paper sent to Committee members, attached as Appendix 1 to this paper. Further information was provided to the Committee, which was and remains exempt from publication to the public or press by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL.

## **5 Programme and Project Authority Approvals since 11 October 2018**

- 5.1 To enable an appropriate level of governance, processes are in place for the authorisation, control and reporting of projects.
- 5.2 Programme and Project Authority will normally be granted by the Committee for all Programmes within the overall Investment Programme. Where individual Projects have a value in excess of £50m and have not already received full approval as part of a Programme, requests will be submitted to the Committee for consideration. Those programmes and projects with an estimated final cost of £50m or below, which have been approved by the Commissioner or the Chief Finance Officer, will be reported to subsequent meetings of the Committee.
- 5.3 Where the main contract has not yet been awarded, the Financial Authority and Estimated Final Cost may not be stated because they are commercially confidential.
- 5.4 The Committee will also be informed of the implementation of any applicable Direction from the Mayor relating to TfL's Programmes and Projects. There is nothing to report for this meeting.

### **Approvals by the Commissioner**

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

### **Approvals by the Chief Finance Officer**

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

## **6 Procurement Approvals**

### **Approvals by the Commissioner**

- 6.1 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**

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

### **List of appendices to this report:**

Appendix 1: Paper to the Committee requesting the use of Chair's Action on the Northern Line Extension dated 23 October 2018.

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

### **List of Background Papers:**

None

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**Date Issued: 23 October 2018**

**Item: Use of Chair's Action: Northern Line Extension**

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## **1 Summary**

- 1.1 The purpose of this paper is to seek approval to enter into Heads of Terms relating to the Northern Line Extension (NLE) project between TfL and Battersea Project Holding Company Limited (BPS) recording the parties' agreement in principle to:
- (a) agree an attribution for the additional costs occasioned by certain design and boundary changes at the Battersea Power Station site;
  - (b) consent to BPS undertaking a funding transaction such consent to include consent to the sale of certain BPS group entities and the sale of certain ground rents;
  - (c) vary the agreements relating to the NLE in order to effect the agreement.
- 1.2 The use of Chair's Action is considered appropriate as TfL wishes to secure agreement of the above matters with BPS at the earliest opportunity and BPS needs agreement of the matters in question ahead of the next meeting of the Committee on 11 December 2018 in order to secure the necessary funding.
- 1.3 An appendix to this paper contains supplementary information that is exempt from publication by virtue of paragraphs 3 and 5 of Schedule 12A of the Local Government Act 1972 (a) in that it contains information relating to the business affairs of TfL; and (b) in respect of which a claim to legal professional privilege could be made.
- 1.4 The contents of this paper and the exercise of the Chair's Action will be reported to the next meeting of the Committee.

## Appendix 1

### 2 Recommendations

- 2.1 The Chair of the Committee is asked to note the paper and the supplementary Appendix which is exempt from publication and is asked to approve:
- (a) the entry into of the Heads of Terms with the developer of the Battersea Power Station substantially as described in the Appendix (and/or its associated companies);
  - (b) the attribution for the additional costs occasioned by the design and boundary changes at the Battersea Power Station site with the developer of the Battersea Power Station ;
  - (c) the granting of consent to the funding transaction proposed to be effected by the developer of the Battersea Power Station (and/or its associated companies); and
  - (d) the entry into of such agreements and consents with the developer of the Battersea Power Station (and/or its associated parties) as may be necessary or desirable to give effect to the above.

### 3 Background

- 3.1 The NLE provides a twin tunnelled extension of the Northern Line from Kennington to a terminus station at Battersea Power Station via an intermediate station at Nine Elms. There are over-site developments (OSD) at both Battersea and Nine Elms Stations. The Battersea OSD is being developed by BPS. The Battersea Station construction site is shared between TfL and BPS.
- 3.2 TfL entered into a suite of agreements with BPS and its associated companies on 4 April 2014 (the BPS Agreements). These govern the interaction between BPS' and TfL's works in relation to Battersea Station and BPS' OSD. They also contain provisions relating to BPS' financial contributions towards the NLE, including restrictions on disposals of land by BPS/its associated companies. The BPS Agreements were based on the OSD scheme approved by Wandsworth Council in December 2012.
- 3.3 In early 2014 BPS changed its OSD scheme. Accommodating BPS' revised OSD proposals required re-work of the Battersea designs tendered by TfL's contractor. TfL and BPS have been in discussions relating to these matters and have agreed an attribution for the additional costs.
- 3.4 BPS wishes to effect a funding transaction which requires the release of certain entities from the LPSD between TfL and BPS and TfL is agreeable

## Appendix 1

to such release. BPS has agreed to compensate TfL for this release to ensure that the level of security TfL have over future longstop payments from BPS is not diminished by this transaction. These payments are part of the funding package which underpins the GLA's borrowing for the NLE.

3.5 Further details are provided in the Appendix.

### List of Appendices:

Appendix containing information that is exempt from publication.

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**Appendix 2: Summary of Procurement Authority Approvals**

Approval Date	Contract / Project Name	Type	Total Value (£k)	Approval
13/11/2018	Beckton DLR Depot - Detailed design and option design support services contract	Contract award	5,779	Chief Finance Officer

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## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** Strategic Risk Update – SR12

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### This paper will be considered in public

#### 1 Summary

- 1.1 At its meeting on 11 October 2018, the Committee received an update on TfL's new Enterprise Risk Management Framework, the Enterprise Risk Assessment Matrix and the TfL strategic risks, including the two risks that fell within the remit of this Committee and would be reported to it in future.
- 1.2 The paper provides an update on how TfL manages SR12 – 'Delivery of Key Investment Programmes and Projects Captured in the Business Plan' through the Major Projects Directorate.
- 1.3 The Major Projects Directorate was established to enable delivery of TfL's most sensitive projects with the highest level of assurance on cost, time and quality. The Programme Management Office is central to embedding strong project disciplines and independent assurance of delivery. It is now working to embed the same level of controls across all project and programme delivery pan-TfL.
- 1.4 A paper is included on Part 2 of the agenda, which contains exempt supplemental information pertaining to the strategic risk deep dive. 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 and financial affairs of TfL that is commercially sensitive and likely to prejudice TfL's commercial position. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

#### 2 Recommendation

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

#### List of appendices to this report:

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

#### List of background papers:

11 October 2018 Committee paper on Strategic Risk Management Update

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## Programmes and Investment Committee



**Date: 11 December 2018**

**Item: Air Quality and Environment Programme 2018/19**

**This paper will be considered in public**

### 1 Summary

<b>Air Quality and Environment Programme 2018/19</b>				
Existing Financial Authority for 2017/18 – 2022/23	Estimated Final Cost (EFC) for 2017/18 – 2022/23	Existing Programme and Project Authority Requested for 2017/18 – 2021/22	Additional Authority Requested for 2018/19 – 2022/23	Total Authority requested for 2017/18 – 2022/23
£428m	£394m	£202m	£78m	£280m

**Authority Approval:** The Committee is asked to approve budgeted Programme and Project Authority of £280m to reduce emissions from vehicles in London. This authority covers financial years 2017/18 - 2022/23.

**Outputs and Schedule:** The Air Quality and Environment Programme improves transport's impact on air quality and climate change through a programme of measures targeted at vehicles in TfL's contracted and regulated fleets, and all vehicles driving in London.

- 1.1 This paper presents the strategic case for the Surface Transport Air Quality and Environment Programme (AQE Programme) and summarises delivery progress and governance practices.
- 1.2 Section 6 contains a detailed cost and funding breakdown for this proposal, including third party elements.
- 1.3 Headline achievements for the AQE Programme in 2017-2018 include:
  - (a) 2,100 TfL buses retrofitted, meaning that over 80 per cent of the central London bus fleet is now ULEZ compliant;
  - (b) over 120 zero-emission at tail-pipe buses operating in the bus fleet;
  - (c) 90 green Dial-a-Ride vehicles ordered. The first 14 have arrived on site and will be operational by December 2018 with the rest before April 2019; and
  - (d) 137 rapid charging points installed across London. On track to install 150 by the end of the 2018 and 300 by the end of 2020.
- 1.4 The AQE Programme will return annually to the Committee to renew and validate a rolling approval. Previous approval was granted for £202m in October 2017.

## **2 Recommendation**

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

- (a) approve Programme and Project Authority of £280m for delivery of the Surface Transport Air Quality and Environment Programme, covering: £67m in 2017/18, £109m in 2018/19; and £104m for activities which commence in 2018/19 and extend into subsequent years as described in this paper; and**
- (b) note that Procurement Authority in respect of the various elements of the Surface Transport Air Quality and Environment Programme will be sought at officer level in accordance with Standing Orders.**

## **3 Strategic Context for AQE Programme**

3.1 The Mayor's Transport Strategy (MTS) sets out the Mayor's vision that 'London's transport network needs to contribute to the meeting of legal air quality levels as soon as possible and the achievement of a zero carbon city by 2050, thereby protecting the health of Londoners and demonstrating a commitment to tackling climate change.'

3.2 The MTS also establishes the Mayor's vision to 'create a future London that is not only home to more people, but is a better place for all of those people to live in'. As such the MTS tasks TfL to adopt a 'Healthy Streets approach' at the heart of all its decision-making. This underpins specific air quality policies such as:

- (a) Policy 6 of the MTS, which states that 'the Mayor, through TfL and working with the boroughs, will take action to reduce emissions – in particular diesel emissions – from vehicles on London's streets, to improve air quality and support London reaching compliance with UK and EU legal limits as soon as possible. Measures will include retrofitting vehicles with equipment to reduce emissions, promoting electrification, road charging, the imposition of parking charges/levies, responsible procurement, the making of traffic restrictions/regulations and local actions'.

In support of Policy 6, proposals include the introduction of the Ultra Low Emission Zone (ULEZ) 18 months early in 2019; its expansion London-wide for heavy vehicles by 2020 and to inner London for all other vehicles (except taxis) by 2021; the creation of an alert system to inform Londoners about air pollution episodes; and additional emergency measures to reduce or restrict vehicle use when periods of very high air pollution risk have the potential to cause immediate adverse health effects; and

- (b) Policy 7 of the MTS, which states that 'the Mayor, through TfL and the boroughs, and working with other transport providers, will seek to make London's transport network zero carbon by 2050, which will also deliver further improvements in air quality, by transforming London's streets and transport infrastructure so as to enable zero emission operation, and by supporting and accelerating the uptake of ultra-low and zero emission technologies.'

In support of Policy 7, proposals in the MTS include: encouraging the uptake of Zero Emission Capable (ZEC) taxis and private hire vehicles; the use of ultra low emission vehicles in Greater London Authority (GLA) and London Borough fleets; and the implementation of zero emission zones.

- 3.3 The overarching strategic case for the AQE Programme was established in the appendices of the previous submission to the Committee in October 2017. Evidence has been presented which demonstrates why the AQE Programme is required for London to improve transport's impact on air quality and climate change.
- 3.4 The two key pollutants of concern in London are nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM), both of which are harmful to human health. At high concentrations, NO<sub>2</sub> causes inflammation of the airways and long term exposure is associated with an increase in symptoms of bronchitis in asthmatic children and reduced lung development and function. PM can harm the human respiratory and cardiovascular systems.
- 3.5 The legal limits (called "limit values") for ambient air pollutants are set by European Union Directive 2008/ 50/ EC and in domestic law by the Air Quality Standards Regulations 2010. This legislation will remain in force in UK law regardless of the UK leaving the European Union, unless and until specifically amended or repealed by Parliament.
- 3.6 Large areas of the Capital continue to exceed both the annual mean and hourly limit values for NO<sub>2</sub> and this is likely to continue beyond 2020, unless more action is taken. London is currently compliant with limit values for levels of PM less than 2.5 microns in diameter (PM<sub>2.5</sub>), although it does not meet safe levels as recommended by the World Health Organization. Without further action, this is projected to be the case until after 2030.
- 3.7 The Mayor and TfL are under a duty to take action to bring an end to the current NO<sub>2</sub> limit value exceedance as quickly and effectively as possible. However, additional Government action is required to under-pin the effectiveness of the measures to be taken by the Mayor and TfL. London Boroughs also have their own responsibilities under the local air quality management framework of the Environment Act 1995.
- 3.8 Under the Greater London Authority (GLA) Act 1999, the Mayor must prepare a London Environment Strategy (LES) looking at, among other things, the Capital's air quality and containing measures to meet legal limits as soon as possible. The latest LES was published in May 2018 and notes that the Mayor wants London to have the best air quality of any major world city by 2050.
- 3.9 Diesel vehicles are the most significant source of nitrogen oxides (NO<sub>x</sub>) emissions, which contribute to illegal levels of NO<sub>2</sub>. The reason for this is partly because of the underperformance of some diesel vehicle Euro emission standards over time, with significant discrepancies between official emission measurements and real-world vehicle performance in urban environments.
- 3.10 Globally there is an urgent need to reduce greenhouse gas emissions, in particular carbon dioxide (CO<sub>2</sub>). CO<sub>2</sub> emissions from transport are unlikely to decrease quickly enough to support the Mayor's ambition for a zero carbon city by 2050. It will only be possible to bring about a zero carbon city by 2050 if all vehicles have zero exhaust emissions by that date. The current investment programme is producing the action necessary to facilitate that change.

## 4 AQE Programme Delivery 2017/18

### Summary

- 4.1 The AQE Programme achieved excellent delivery in 2017/18 in terms of meeting outcomes and delivering significant value engineering/management savings, enabling projects to stay within their budgeted estimated final cost. The programme had an original approved gross budget of £55m against an actual outturn cost of £44m.
- 4.2 The £11m favourable variance is driven by the change in accounting treatment on Selective Catalytic Reduction (SCR) Bus Retrofit (£5m) driven by only having on average three years contractual rights to SCR kit, deferred spend of £14m with the most significant being taxi delicensing and zero emission cab incentives due to lower uptake and £2m savings on Emission Surcharge due to risk release. This is offset by a £10m increase in the ULEZ Central project, reflecting an increase in contractor costs plus an acceleration of spend in line with delivery of key systems by Capita.

### Delivery

- 4.3 Key financial and AQE Programme outputs for 2017/18 are provided in Table 1.

Table 1. AQE Programme - Component Projects

Sub-programme	PIC 2017 (£m)	Description	Target (Date)	Progress to date (November 2018)
<b>Rapids</b>	17.5	Delivery of a network of rapid charge points in London to enable the electrification of the taxi and private hire fleets and wider uptake of commercial ultra low emission vehicles.	150 Rapid Charge Points (December 2018)	137 Rapid Charge Points delivered.
<b>Go Ultra Low City Scheme (GULCS)</b>	10.6	Delivery of residential on-street and car club charging infrastructure and local Neighbourhoods of the Future demonstration schemes to encourage a switch to ULEVs.	1,150 residential charge points by 2020. Nine Neighbourhoods of the Future (NOF) schemes by 2020.	19 charge points installed. 9 NOF in delivery. 24 Boroughs supported in the delivery of residential charge points.
<b>Mayor's Air Quality Fund (MAQF)</b>	7	A £20m fund over 10 years to support new projects by the London boroughs to improve air quality.	Multiple rounds of funding (2025).	Two rounds complete (2015-2018). Third has commenced (2018-2020).
<b>T-charge</b>	12.5	A £10 charge on the Congestion Charge to discourage the use of the most polluting vehicles in central London, to be superseded by ULEZ.	Go live (October 2017)	Completed
<b>ULEZ Central 2019</b>	47.4	From April 2019, the Ultra Low Emission Zone will require motorcycles, cars, vans, minibuses, buses, coaches and heavy goods vehicles to meet minimum emissions standards to travel in the Congestion Charge zone or pay a daily charge.	Confirmed by the Mayor Go live (April 2019)	Project on track to go live April 2019.
<b>ULEZ Expansion 2021</b>	5.3	Expansion of the central London ULEZ to the North and South Circular Roads in 2021.	Confirmed by the Mayor (June 2018)	Consultation complete. 54 per cent support or

Sub-programme	PIC 2017 (£m)	Description	Target (Date)	Progress to date (November 2018)
				strongly support an expansion of the ULEZ.
<b>LEZ 2020</b>	0.4	Strengthening of the LEZ standards London wide for buses, coaches and heavy goods vehicles in 2020.	Confirmed by the Mayor (June 2018)	Consultation complete. 74 per cent support or strongly support.
<b>Taxi delicensing</b>	0.3	A voluntary delicensing scheme to encourage the removal of the oldest taxis from London licensing and purchase grants for new zero emission capable vehicles.	10,000 taxis delicensed (31 Dec 2020)	165 diesel taxi delicensing grants (as of November 2018).
<b>Taxi uptake grant (OLEV funded)</b>	23.3		9,000 ZEC taxis or 45 per cent reduction in diesel taxi related emissions (31 Dec 2020)	761 ZEC taxis (as of November 2018).
<b>Bus retrofit</b>	63.6	Retrofit equipment fitted London buses to meet Euro VI emissions limits	4,200 buses (2020)	2,100 buses.
<b>Hydrogen bus</b>	5.9	JIVE consortium funded initiative to procure 20 hydrogen buses and 2 re-fuelling stations in West London	Two additional buses	Two new hydrogen buses joined the fleet in 2018.
<b>Low Emission Bus Zone</b>	4.9	Introducing cleaner buses on the highest polluting bus routes ahead of ULEZ.	Retrofitting all buses on routes through these zones by 2019	Over 1840 Euro VI TfL buses operating within seven zones since December 2017.
<b>Dial-a-ride fleet renewal</b>	0	Upgrading of TfL fleet vehicles to ensure compliance with ULEZ.	90 new vehicles for fleet	90 vehicles ordered and due by March 2019. First vehicle delivered by end of the year.
<b>Pantograph Trial</b>	3.6	Electrified bus charging infrastructure proposed for bus route running between Putney and Peckham in Autumn 2018.	Installation at Peckham Bus Station and Putney Heath (2017-2019).	Due to technical difficulties this trial is no longer going ahead.
<b>Air Quality Measures</b>	2	A series of consultations on the Mayor's proposals to introduce ULEZ earlier in central London and expand the zone in 2021.		Delivered Autumn 2018

\*Total 2017/18 PIC authority also included a value engineering target reducing overall by £2m

4.4 TfL committed to delivering a range of environmental schemes and activities in the 2017 paper to the Committee. The following commentary covers key areas of progress.

## Rapids

- 4.5 The Rapids programme aims to deliver a network of rapid charge points (RCPs) in London to enable the electrification of the taxi and private hire fleets and encourage uptake of commercial ultra low emission vehicles.
- 4.6 On 16 March 2018 the project achieved 100RCPs, two weeks ahead of target. Since then the network of RCPs, as illustrated in Figure 1, has grown to 137. We are on track to deliver 150 RCPs by the end of 2018 and 225 by the end of 2019, with a target of 300 RCPs by the end of 2020.
- 4.7 A new assessment tool to support site identification and selection has been developed so we remain on target for delivery.

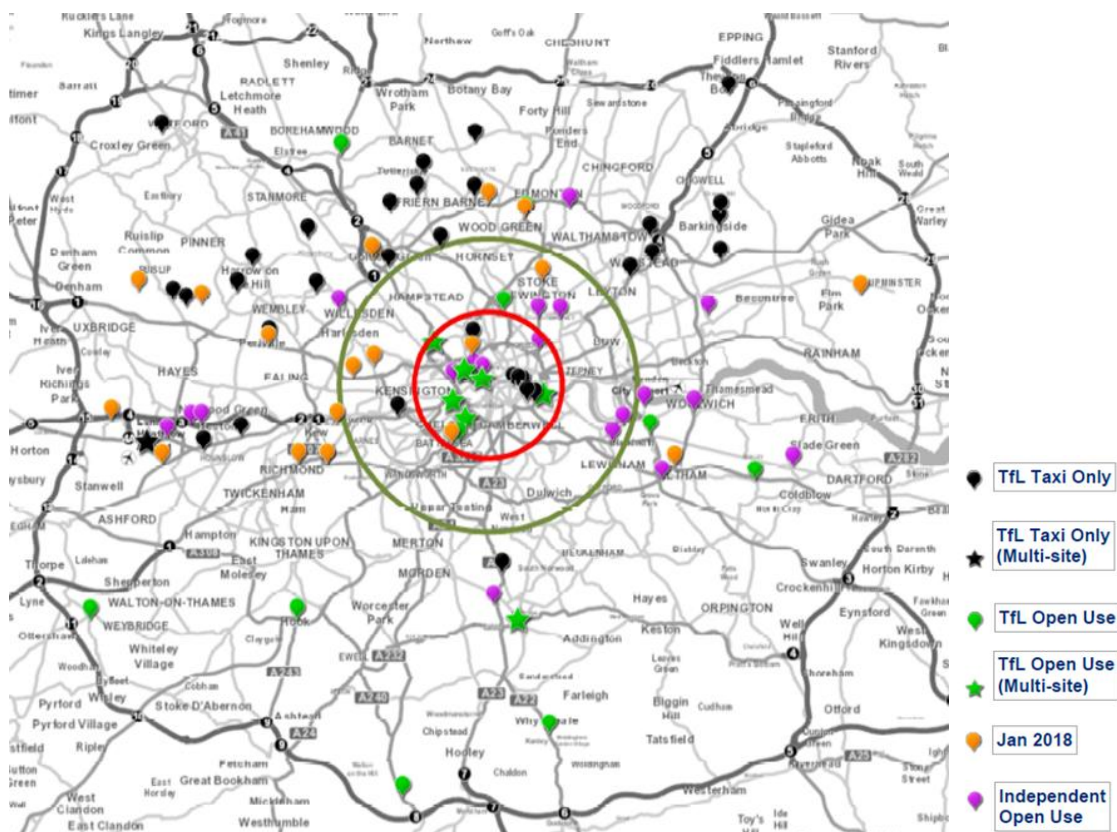


Figure 1. RCP Installations within the M25 (as of September 2018)

## Go Ultra Low City Scheme

- 4.8 The Go Ultra Low City Scheme (GULCS) is an Office for Low Emission Vehicles (OLEV) funded joint programme between TfL, London Councils, the GLA and the London Boroughs. The scheme is focused on increasing the provision of charge points in London under four work streams:
  - (a) On-street residential charging;
  - (b) Car club charging;
  - (c) A contribution to the rapid charging project; and
  - (d) Neighbourhoods of the Future (NoF).

- 4.9 We have issued funding agreements to 24 London Boroughs for on-street residential and car club charging. In August 2018 we launched a framework contract to support boroughs in procuring resources to supply, install, operate and maintain lighting columns and free-standing charge points. We have also held supplier events and commercial knowledge share workshops. Approximately 70 orders for lamp post / lighting column charge points (see Figure 2) have been placed via the residential charging framework.



Figure 2. Lighting column charge point. (Image: RB of Kensington and Chelsea)

The GULCS project is also funding nine NoF schemes, which are locally based borough-led projects that test innovative Electric Vehicle (EV) charging technologies, initiatives and policies to support the growth of clean vehicles in London. The majority of NoFs include proposals to increase the availability of EV charging infrastructure. Three NoF projects in Camden, Hackney, and Hammersmith & Fulham (two) were launched in March 2018.

### **Mayor's Air Quality Fund**

- 4.10 The Mayor's Air Quality Fund (MAQF) is forecast to operate over ten years to support new projects by London boroughs to improve air quality. The second round of funding awarded support to projects commencing in April 2016. In September 2018, the third round of MAQF funding will open for applications with projects then commencing in April 2019. MAQF criteria were developed in close partnership with Boroughs, such that clear guidance was provided to ensure any investment aligns with, and contributes to, MTS outcomes.
- 4.11 Five boroughs were supported to deliver Low Emission Neighbourhood (LEN) proposals, with further match funding from the boroughs. A LEN is a package of measures that creates a measureable reduction in emissions within a fixed area and improves community life. The LENs will be in operation by January 2019.

- 4.12 Twenty eight boroughs had projects starting in April 2016 and concluding in March 2019. Support was provided to:
- (a) electrify Hackney Council's vehicle fleet;
  - (b) continue the London Low Emission Construction Partnership to reduce the industry's impact on air quality; and
  - (c) fit low cost electric vehicle charging points onto lamp columns across Hounslow.
- 4.13 A good example was support provided to establish a green courier service in the London Borough of Waltham Forest. ZED (Zero Emissions Delivery) provided a same day delivery service using cargo bikes and electric vehicles as shown in Figure 3. It launched in September 2017 and continues to operate across the borough. Between September and December 2017 the company delivered 1,219 packages, cycled 1,257km and saved an estimated 359kg equivalent of CO<sub>2</sub>.



Figure 3. ZED Cargo Bikes

### T-charge

- 4.14 The T-Charge was introduced on 23 October 2017 to discourage the use of older, more polluting vehicles and to act as a stepping stone ahead of the full introduction of the Ultra Low Emission Zone (ULEZ) on 8 April 2019, when tighter vehicle emissions standards will come into force.
- 4.15 Our latest figures show that compliance with the T-Charge emissions standards has increased from 94 per cent (in the week before go-live) to over 95.4 per cent, representing around 1,300 fewer of the oldest, most polluting vehicles entering the Congestion Charging Zone during charging hours each day.



## **Vehicle Compliance Zones**

- 4.16 The decision to bring forward the introduction of the ULEZ in central London to April 2019 was approved by the Mayor on 2 November 2017. From April 2019, the ULEZ will require motorcycles, cars, vans, minibuses, buses, coaches and heavy goods vehicles to meet minimum emissions standards to travel in the Congestion Charge zone or pay a daily charge (applies 24/7). This project is on track to meet the go live date.
- 4.17 The decision to expand the ULEZ to Inner London (“ULEZ Expansion 2021”) , up to but not including the north and south circular roads, from October 2021 and to strengthen the Low Emission Zone (LEZ) standards for heavy vehicles from October 2020 (“LEZ 2020”) was approved by the Mayor on 6 June 2018. The Mayor’s confirmation obliges TfL (as road charging authority) to implement the amended Scheme Order unless and until varied.

## **Taxi & Private Hire Vehicles**

- 4.18 From 1 January 2018, any taxi presented to TfL for licensing for the first time must be Zero Emissions Capable. This means having CO<sub>2</sub> emissions of no more than 50g/km and a minimum 30 mile zero emission range. The requirement for zero emissions capability will be applied to Private Hire Vehicles (PHVs) from 2020. In advance these requirements, any PHVs licensed for the first time from 1 January 2018 must have a Euro 6 petrol or diesel engine, or a Euro 4 petrol-hybrid engine. From 1 January 2020 all new (less than 18 months old) PHVs licensed for the first time will have to be zero emission capable.
- 4.19 To support this, a specialist team has been established to administer grant and delicensing payments within Taxi & Private Hire. As of November 2018 there have been 165 taxis delicensed and 761 grants for new electric vehicles processed. There has been a lower than expected uptake of the decommissioning grant, as well as a lower uptake of the ZEC taxi.

## **TfL Fleet Compliance (Bus)**

- 4.20 All TfL buses are subject to the same ULEZ Euro VI requirement in central London as other heavy vehicles and private buses from April 2019.
- 4.21 Over 80 per cent of the bus fleet serving central London is now ULEZ compliant. All double decker buses serving central London will be hybrid and meet Euro VI engine emissions from April 2019, and all single decker serving central London will be zero-emission at tailpipe by 2020. This will be achieved through a combination of introducing new vehicles on new contracts, or by retrofitting buses to this higher standard.
- 4.22 TfL is also ensuring that its entire bus fleet meets the wider ULEZ and LEZ requirements by October 2020. Over 5,000 of London’s 9,000 buses currently meet the latest Euro VI emissions standard.
- 4.23 Currently there are over 120 pure electric buses in the fleet, including 5 double deck buses, in addition there are 10 hydrogen fuel cell buses in the fleet. By the end of the year, there will be over 150 pure electric buses in the fleet.
- 4.24 Sixty-eight electric double decker buses are on order for two routes (43 and 134), which will join the bus fleet in summer 2019. This landmark order means we will have the largest pure electric double-decker bus fleet in Europe.

4.25 During this transition from diesel to pure electric, the fleet is increasingly becoming hybrid with the diesel engine combining with an electric motor powered partly by regenerative braking. Over 3,000 buses in the fleet use this technology to help cut CO<sub>2</sub> emissions by up to a quarter.

### Low Emissions Bus Zones

4.26 Twelve Low Emissions Bus Zones (LEBZ) are being introduced to tackle the worst pollution hotspots by prioritising cleaner buses on the higher emission corridors (see Figure 4) in advance of the entire fleet meeting the ULEZ standard by October 2020.

4.27 All buses travelling in these zones will meet Euro VI emission standards, either through the introduction of new vehicles on new contracts, or through retrofitting older mid-life buses. The changes are expected to reduce the most harmful bus emissions across the 12 zones by around 80 per cent. Seven zones have been delivered:

- (a) Putney High Street;
- (b) Brixton to Streatham;
- (c) High Road to Green Lanes;
- (d) Camberwell to New Cross;
- (e) Wandsworth to St John's Hill;
- (f) A12 Eastern Avenue to Homerton Road; and
- (g) A5 Edgware Road.

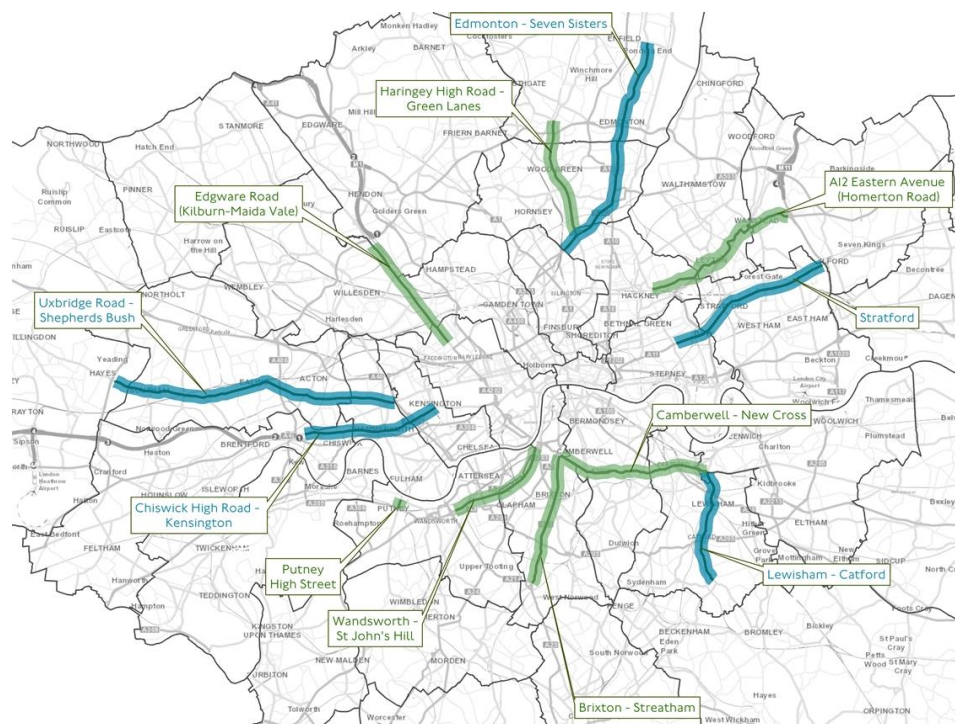


Figure 4. Low Emissions Bus Zones – seven delivered in green.

4.28 Further monitoring and detailed assessments are ongoing. All LEBZs will be delivered ahead of schedule by the end of 2019, earlier than the Mayor's previous target of 2020.

## **TfL Fleet Compliance (Dial-a-ride)**

- 4.29 To improve our service and ensure ULEZ fleet compliance, we are upgrading our Dial-a-ride fleet to new cleaner and more fuel efficient vehicles. In 2017/18, we procured and awarded a contract from which 90 vehicles have been ordered. These are due to be in service by March 2019. A second phase, to ensure the whole fleet is ULEZ compliant is programmed for delivery by ULEZ Expansion launch in October 2021.

## **5 Embedding the AQE Programme across TfL**

- 5.1 Changes to TfL's organisational structure, governance arrangements and monitoring processes, supported by new tools, have been developed and applied in 2017/18 to help embed the AQE Programme aims and activities. This section of the paper outlines those measures. Significantly:
- (a) the AQE Programme is one of the principal mechanisms by which the environmental elements of the Healthy Streets Approach are delivered and embedded in TfL's activities;
  - (b) the MTS goal of "making London's streets clean and green", and the current AQE Programme contains most, though not all, of Surface Transport's activities to reduce airborne emissions. Other Surface Transport activities also contribute to delivering the aim of making London's streets clean and green. In particular the Healthy Streets Programme and the Public Transport Programme deliver substantial improvements in sustainable mode share, and the resultant reduction in road traffic will contribute to improving air quality; and
  - (c) we also work with outside organisations such as the London Boroughs, fleet operators, and the automotive industry to deliver air quality benefits.

### **Organisational structure**

- 5.2 Within TfL Surface Transport, a newly-formed Surface Strategy and Network Development directorate has been created to reflect Surface Transport Programmes. As a result a team of sponsors has been dedicated to AQE projects and is working closely with both the Air Quality and Environment Delivery Planning (AQEDP) team and the Project and Programme Delivery Directorate (PPD).
- 5.3 Within the new City Planning directorate, the AQEDP team has been set up to ensure continuity of approach between strategy and implementation of air quality projects. The AQEDP team also works with other parts of Surface Transport to promote and embed broader environmental approaches, for example working with sponsors to ensure Mayoral policies, such as sustainable urban drainage, are accurately reflected in TfL's project priorities.
- 5.4 A MTS Delivery Group has been established. This is chaired by the Director of City Planning and comprises senior managers from across TfL. This has superseded the Embedding Healthy Streets group, set up in 2017 to oversee the introduction of the Healthy Streets approach into TfL's activities, and includes all environmental elements of MTS.
- 5.5 As noted in Section 4, the AQE Programme has a number of interfaces outside TfL, with parts delivered by London Boroughs and third parties. TfL regularly engages with these key stakeholders to ensure a joined-up approach to delivery. Additionally the MAQF is a mechanism by which the Programme funds Borough projects to

provide Air Quality Benefits. MAQF criteria were developed in close partnership to provide clear guidance so London Boroughs develop projects that align with the aims of the MTS and to ensure any investment contributes to achieving its outcomes.

### **MTS Outcomes, Key Performance Indicators and TfL scorecard**

- 5.6 Significant work has been undertaken to ensure the aims of the MTS are clearly understood and embedded across the organisation. This has included the development of MTS outcomes and performance indicators, shown in Figure 5. The resulting framework has been replicated – with appropriate modifications – in TfL’s key processes and tools, meaning that there is a ‘golden thread’ of MTS outcomes throughout our AQE Programme activities.
- 5.7 The 2018/19 TfL Scorecard has been updated in order to provide a clear line of sight between the MTS and the Business Plan and how TfL monitors and drives performance. TfL Scorecard indicators are shown in pink in Figure 6.
  - (a) Two new Scorecard indicators have been introduced to reflect progress against AQE deliverables: Euro VI compliance of buses (Green); and
  - (b) increase in sustainable mode share (Efficient).
- 5.8 The approach to benefits management at the project level has been aligned with those scorecard indicators, such that as the programme delivers its benefits it will be possible to attribute the progress tracked on the scorecard to the activities within the AQE Programme.

Long Term Objectives		2018/19 Scorecard Measures			
Theme	Outcome	Measure	Target	Category	
Mayor's Transport Strategy (MTS)	Healthy streets and healthy people (18%)	Reduction in road killed & seriously injured from 2005-09 baseline	45.4%	Safety & Operations (25%)	
		London's transport system will be safe & secure	Reduction in road killed & seriously injured from 2005-09 baseline (incidents involving buses)		55.6%
			Injuries on the public transport network		11,683
		London's streets will be used more efficiently & have less traffic	Operational improvements to sustainable travel		tbc <sup>1</sup>
		London's streets will be clean and green	Number of London buses which are Euro VI compliant		6,050
		More Londoners will travel actively	Healthy streets scheme assessment		Average 10% uplift <sup>2</sup>
	A good public transport experience (17%)	Journeys by public transport will be fast and reliable	Tube excess journey time	4.50min	Customer (25%)
			Average bus speeds	9.2mph	
		Public transport will be accessible to all	Additional time to make step-free journeys	9 minutes	
	New homes and jobs (2½%)	Transport investment will unlock the delivery of new homes and jobs	Customer satisfaction (percentage of Londoners who agree we care about our customers)	49%	
The percentage of housing units we take to market in year that are affordable			50% affordable		
Mode Share (5%)	80% of journeys will be made by sustainable modes in 2041	Sustainable mode share improvement	4 out of 4 elements Improve <sup>3</sup>		
All MTS themes (7½%)	All MTS outcomes	Deliver key investment milestones	90%		
		Deliver Elizabeth line central section	Dec 18		
Corporate	People (25%)	Workforce representativeness - all staff	70.7%	People (25%)	
		- director / band 5	46.6%		
		Inclusion index	46.0%		
	Financial (25%)	We cover our costs and we are prudent	Total engagement	56%	
Net operating surplus / (deficit)			Budget	Financial (25%)	
	Investment programme	Budget			

Figure 5. 2018/19 TfL Scorecard Measures

### Embedding MTS Outcomes at the project level: project benefits

- 5.9 Every project in the AQE Programme expresses a contribution to MTS outcomes in terms of measurable benefits. The AQE Benefits Management Strategy has been developed by AQEDP to demonstrate the linkages between project benefits (often local and granular) through to MTS outcomes. The strategy contains a provisional benefits map which also shows a single, preferred method of measuring any given benefit; aligned to scorecard indicators where possible.

- 5.10 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 and prioritised. Over time, as all projects adopt the new benefits and associated measures, it will be possible to give a coherent view of cumulative benefits expected, further enriching the Programme balancing process described above.
- 5.11 A key function of the AQEPB is to monitor benefits realised by projects, compared to benefits expected. All AQE projects are expected to plan the expected realisation of measurable benefits from the project, and to provide a full report on benefits measured to the AQEPB once relevant data has been gathered post-project.

## 6 AQE Programme Proposal 2018-2023

- 6.1 We propose to deliver the full programme as set out in Table 2 and Figure 6. This will include ULEZ Central 2019, ULEZ Expansion 2021 and LEZ Tightening 2020. We will ensure compliance within our own fleet by renewing our Dial-a-ride vehicles and retrofitting our bus fleet. We will continue to invest in Borough initiatives through MAQF and GULCS.

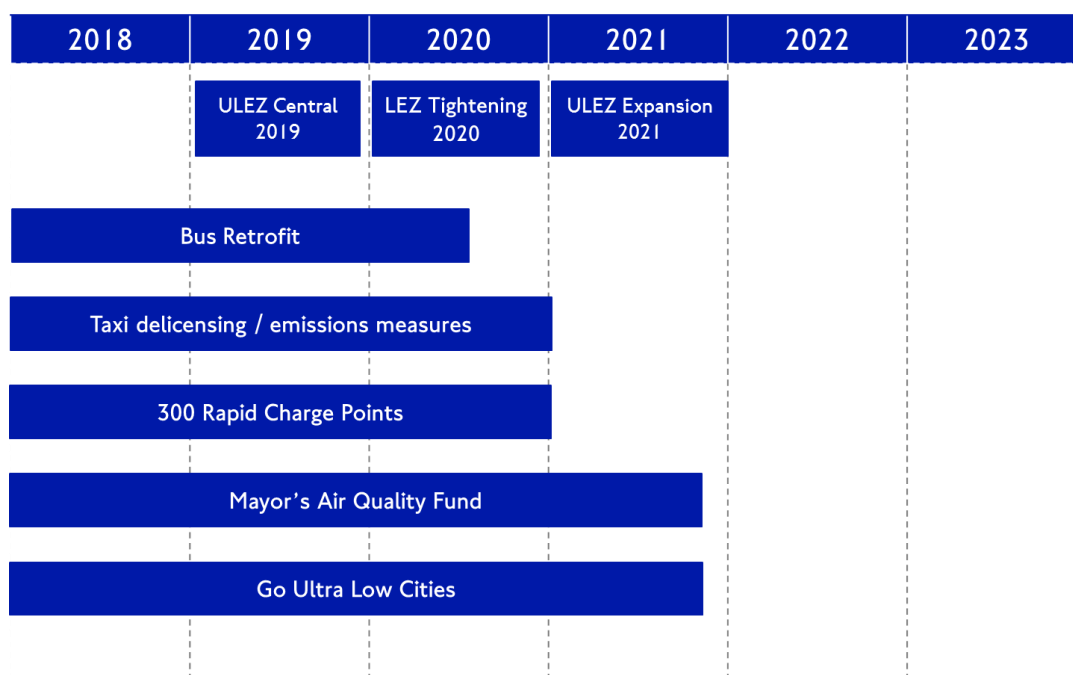


Figure 6. Timeline of key AQE Programme deliverables (2018-2023)

- 6.2 This strategy will enable us to deliver key benefits including improved air quality, better quality of life and health of Londoners, and increased use of newer & cleaner vehicles - including buses, taxis and PHVs. It will also enable us to meet legal compliance with NO<sub>2</sub> limits in the shortest practical time.
- 6.3 Programme governance will be managed in line with Standing Orders. The governance structure for the Programme includes a well defined hierarchy of forums (covering projects and sub-programmes) with consistent terms of reference, clear accountabilities and authorities, and coordinated meeting cycles. These forums will monitor and review delivery progress and either take or escalate

decisions (for example on costs, risks, milestones, priorities and policies) as defined in their terms of reference.

6.4 It should be noted that while the authority request relates to multiple financial years the Programme will return to the Committee every year for updated authority. The use of a rolling authority reflects the need to adjust priorities within the Programme based on emerging risks, opportunities and constraints.

6.5 The Committee will be updated on a quarterly basis on progress with delivery.

6.6 The following commentary relates to specific elements of the proposal seeking new or additional authority.

#### **Congestion Charge Scheme Order Review**

6.7 TfL has reviewed existing discounts and exemptions to the Congestion Charge. This resulted in proposals to remove the Private Hire Vehicle (PHV) exemption and tighten the standard of the current Ultra Low Emission Discount to a new, phased, Cleaner Vehicle Discount to reduce congestion and improve air quality in the Congestion Charge Zone. These proposals are subject to public consultation and a Mayoral decision regarding confirmation (with or without modifications) of the associated variation order to make changes to the Congestion Charge Scheme Order.

6.8 This project falls within the Vehicle Compliance Zone activity in Table 2.

#### **TLRN Parking**

6.9 TfL is intending to assess, review and rationalise parking controls on the Transport for London Road Network (TLRN) to help manage congestion, air quality and support uptake of active travel and public transport options. Any variations will be subject to public consultation.

6.10 This project falls within the Vehicle Compliance Zone activity in Table 2.

#### **Taxi Initiatives**

6.11 TfL has created a number of initiatives to encourage the uptake of zero emission capable taxis, including a grant for the new vehicle and a delicensing scheme. After an initial slower take up than anticipated, TfL is investigating the options available to ensure the anticipated taxi emissions savings are realised.

6.12 This project falls within the Rapids and Taxi activity in Table 2.

Table 2: Constituent activity areas and Project Authority requested from the Committee (2018/19 – 2022/23)

Activity Areas	Current Financial £m	Current Authority £m	Additional Proposed Authority £m	Authority Request (£m)						
				2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2017/18 to 2022/23
<b>Air Quality</b>	18	9	2	4	4	3	-	-	-	10
<b>TfL Fleet Compliance</b>	133	78	57	31	57	33	13	-	-	135
<b>Vehicle Compliance Zone</b>	175	53	15	16	35	10	8	-	-	68
<b>Rapids and Taxis</b>	80	41	5	5	9	16	12	2	3	47
<b>Go Ultra Low City Scheme</b>	11	11	0	1	5	4	-	-	-	11
<b>Emissions Surcharge</b>	13	13	(1)	12	0	-	-	-	-	12
<b>Value Engineering</b>	(2)	(2)	-	(2)			-	-	-	(2)
<b>TOTAL</b>	<b>428</b>	<b>202</b>	<b>78</b>	<b>67</b>	<b>109</b>	<b>65</b>	<b>33</b>	<b>2</b>	<b>3</b>	<b>280</b>

[1] Project authority is higher in years 2017/18 to 2022/23 than financial authority as reflects a change in the accounting treatment, which is driven by the length of contractual rights left in the bus contracts.

[2] A consultation on a variation order and proposals under way to make changes to the Ultra low emission discount and removal of Private Hire Vehicle Discount



## **Prioritisation**

- 6.13 TfL looks to maximise MTS benefits from all projects. As part of the 2018 Business Planning round, an outcome-based approach was used to prioritise the projects expected to achieve the greatest contribution to the MTS outcomes, in the context of significant pressure being placed on all TfL expenditure. The proposal as presented in Table 2 is the result of this analysis.
- 6.14 The AQE 'pipeline' of projects in development is expected to deliver environmental benefits broader than air quality or carbon (although all pipeline schemes will have quantifiable carbon or air quality benefits). The relative value of these schemes will be further considered in a value management exercise planned for late 2018.
- 6.15 In this portfolio in particular, there is significant political interest and concern about improving air quality for the health of Londoners and to no longer be in breach of EU standards for nitrogen dioxide. Where individual business cases may at times show a smaller return on investment, sometimes due to the economic value, it may still be in the best interest of the Capital to proceed.

## **AQE Interfaces**

- 6.16 The AQE Programme is the primary TfL investment programme delivering the 'cleaner air' element of the Mayor's Healthy Streets approach. The Healthy Streets Programme focuses on optimising the efficiency of the transport network, improving transport's impact on the environment, supporting the economy and helping people to live more active, healthier lives. The Assets Programme contributes to AQE outcomes by preventing benefits from being eroded over time, for example, maintaining the condition and ride quality on Cycle Superhighways. The Public Transport Programme contributes to AQE outcomes by encouraging mode shift and a more efficient use of road space that reduce the per person emission footprint of trips.
- 6.17 The Strategic Appraisal Framework (SAF) has been embedded across the Programme. The SAF provides a score derived from our new CityPlanner tool, which provides a spatial understanding of priorities and opportunities across London via a range of datasets. This informs the identification of areas for investment and also project outcome definition:
- (a) project sponsors of AQE projects are expected to state the expected level of benefit to MTS outcomes in a SAF format, and to update SAF outcome scores through delivery and especially during any change management. This means outcome scores can be tracked through the life of a project, and the individual sub-project boards can monitor the effects of any proposed changes to project scope and report to the AQEPB as necessary. An example of SAF scoring is given in Figure 7; and
  - (b) the SAF approach has been implemented across Surface Transport portfolios, to track the impact of AQE projects on other outcomes. For example, bus satisfaction is expected to rise as a result of the refreshed bus fleet being delivered as part of the AQE Programme.

AREA OUTCOME SCORING	Transport Outcomes		Score	Importance Description	V Low	Low	Medium	High	V High
	Active	Active travel, current & potential cycling & walking levels	+ High	High ped & cycling demand and/or potential	■	■	■	■	
	Safe	Road casualties & crime levels	+ Low	Low collision and/or crime incidence	■	■			
	Green	Air Quality (NO2, PM10)	+V High	Highest pollution level	■	■	■	■	
	Space Efficient	Freight flow levels & car dependency	+ Medium	Average vehicle flows and local car ownership	■	■	■		
	Connected Public Transport	Improved connectivity	+V Low	Highest PT accessibility index	■	■			
	Accessible Public Transport	Access Inequality	+ High	Poor accessibility	■	■	■	■	
	Quality Public Transport	Bus performance, demand and provision	+ High	Low perf. High demand & provision	■	■	■		
	Sustainable, Active Travel Developments	Car dependency & poor connectivity	+ Low	Low car dep. & high connectivity	■	■			
	Unlocking Development	Forecast popn. and employment growth	+ High	High popn. & emp. growth	■	■	■		

Figure 7. Strategic Appraisal Framework (SAF)

- 6.18 Where air quality benefits are achieved and realised via projects outside the AQE Programme, those benefits will be identified and tracked. There are few examples of measurable air quality benefits in the schemes currently in implementation, for example the pipeline of Healthy Streets projects will contribute to air quality targets, where notably their Liveable Neighbourhoods schemes are expected to have clear emissions reduction outcomes.

### **Amendment to Governance**

- 6.19 In March 2018 the Executive Committee requested a cross business approach be developed to provide a unified programme to enable future flexibility in emissions policy delivery. This was to be integrated with current plans for ULEZ delivery and any future air quality emissions schemes including related policy development, customer research and political campaigns.
- 6.20 A paper detailing the revised governance process and requesting the transfer of authority (for ULEZ Expansion only) to a new programme will be submitted to the Committee in March 2019.

## **7 Legal Implications**

- 7.1 The AQE Programme will be delivered in accordance with the Equality Act 2010. Equality Impact Assessments are considered on all strategies, policies, business plans, change programmes or projects, having regard to our obligations under the public sector equality duty in Section 149 throughout the delivery of the AQE Programme. As projects progress through feasibility and design, consideration will be given to the need for an Equality Impact Assessment for each one. Possible effects on people with protected characteristics under the Equality Act 2010 (such as age, race, sex, and, often of particular relevance, disability), and mitigations of and countervailing considerations in respect of any adverse effects, will be considered and recorded.
- 7.2 The measures proposed in this report for inclusion in the AQE Programme are consistent with the Mayor's and TfL's duty to bring about compliance with legal limit values for pollutants (NO<sub>2</sub> in particular) as soon as possible and in the manner most likely to achieve that objective. The changes to the ULEZ (commencement in central London in 2019, expansion of emission standards London-wide for heavy vehicles by 2020 and to Inner London for all vehicles by 2021) have now been confirmed. TfL is under a duty to deliver them under the Greater London Low Emission Zone Charging Order 2006 (as amended) and the consultation proposals unless varied by the Mayor.

## **8 Financial Implications**

- 8.1 A summary of the latest financial position versus the 2017 Business Plan and the requested Programme and Project Authority by year is shown in Table 3: AQE Costs and Funding Breakdown.
- 8.2 The rationale behind the authorities requested in this paper is to ensure that projects within the portfolio have sufficient authority for 2018/19 and 2019/20 and for all stages of a project where contractor commitments are extended into next year.
- 8.3 Programme and Project Authority is higher in some years than the portfolio total as the latter total reflects a change in the accounting treatment on SCR Bus Retrofit, which has been driven by only having on average three years contractual rights to SCR kit,

although we expect them to be in the London fleet for an average of six. This means costs are expensed across a longer period but the project will be delivered by 2020

- 8.4 The over programming and value engineering target is 4 per cent; this reflects the fact that the big spend projects within the AQE programme have limited scope for slippage and the programme contains high risk projects never undertaken before. In the event that the full value engineering savings are not realised, then 2019/20 priorities will be reviewed and relevant officers will agree which projects are deferred, de-scoped or stopped.
- 8.5 The approach to cost estimation and the level of cost certainty varies between projects. Influencing factors include the relative maturity of each project (reflected by the Stage Gate) and the relative risk associated with estimating errors (which is likely to reflect the cost used for planning purposes and also the ownership of risk).
- 8.6 Each project is required to actively manage risks by identifying and as far as possible mitigating them. Part of active risk management involves ensuring that adequate financial provision is made to either fund mitigating activity, for example to keep delivery on track or to cover any additional costs that may be incurred in the event that mitigation is not achievable.
- 8.7 For immature projects, risk may simply be calculated as a percentage of base cost. As projects develop, scope is firmed up and designs mature and a detailed risk register will be developed and a Quantified Risk Assessment produced. Most projects will hold risk at P50.
- 8.8 The authority requested contains an appropriate level of risk provision for each project. While there will be a risk register for the AQE Programme, there will not be any strategic risk budget. All risk will be held at the project and, in accordance with agreed governance arrangements, will be approved for drawdown by relevant officers.
- 8.9 The Programme proposal includes funding that is allocated to London boroughs to spend on AQE projects, through the MAQF and GULCS projects. These projects are recognised as operating costs, instead of capital expenditure, where they create an asset for the borough rather than TfL.
- 8.10 Under the Programme there are five projects classed under the vehicle compliance zone that once delivered will generate ongoing operating income and costs which will fund the implementation of the schemes and the compliance costs of Buses, Taxis and Dial-A-Ride vehicles.

Table 3: AQE summary of costs & funding breakdown over the Business Plan

Gross Costs Rounded to £m		2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
AQE Portfolio Total		44	78	91	107	53	22	394
Value Engineering		0	(3)	(3)	(4)	(2)	(1)	(14)
Business Plan	TfL element	61	132	90	106	37	2	428
	Third party funding	(6)	(10)	(9)	(3)	-	-	(29)
Surplus / (Shortfall) v Business Plan 2017		17	58	3	3	(14)	(19)	47
Project Authority*	Total Request	69	110	65	36	-	-	280
	Approved Authority	66	105	20	10	-	-	202
	New Request	3	5	45	25	-	-	78
Future Authority Requests		-	-	22	50	37	5	114

\*Programme and Project authority is higher in some years than the portfolio total as the latter total reflects a change in the accounting treatment on the SCR Retrofit project, which is driven by TfL only having on average six years of contractual rights left in the bus contracts.

## 9 AQE Programme Delivery Challenges

9.1 The AQE Programme has moved forward in 2017/18 as outlined in Section 4. Variations in expected outcomes were described in Table 1 and the following outlines where future challenges have been identified as likely to impact delivery. These may lead to a reframing of programme deliverables or specific mitigation activities:

- (a) taxi emissions – lower than expected uptake of ZEC taxis and decommissioning of diesel taxis could jeopardise taxi emissions targets. We are considering options to address this;
- (b) electric vehicle charging infrastructure – there has been slower than expected uptake by London boroughs for rapid charge points on borough land. TfL is working with a sub group of the Transport Environment Committee to encourage site identification. The Mayor has also launched an Electric Vehicle (EV) Infrastructure Taskforce and its forthcoming EV Infrastructure Delivery Plan will seek to address barriers to EV charge point implementation. It will also set out the scale of the challenge, in terms of expected numbers of charge points required to support different scenarios of EV uptake;
- (c) Ultra Low Emission Zone Central (2019) – concern over the achievement of projected compliance rates within the predicted timescales. A number of actions have been derived to ensure compliance rates remain on track; and
- (d) Ultra Low Emission Zone Expansion (2021) – cost estimates for such a project will inevitably need adjustment. The challenge is to keep this within affordable levels.

## 10 Assurance

- 10.1 TfL Project Assurance conducted an Integrated Assurance Review (IAR) on the AQE Programme in October 2018 (see Appendix 2).
- 10.2 The objective of the IAR was to assess the AQE Programme's readiness to deliver its outcomes. The IAR followed set lines of inquiry to answer whether the AQE Programme sufficiently well managed for the Committee to award authority and delegated authority where appropriate.
- 10.3 An agreed Integrated Assurance Plan (IAP) for the AQE Programme, covering the last 12 months, was produced in October 2017. The IAP set out the projects within the AQE Programme that were expected to be reviewed in the next 12 months. The IAP is reviewed and updated quarterly by Surface Strategy and Network Development directorate on behalf of AQEPB.

### List of appendices to this paper:

Appendix 1: Schedule of constituent AQE projects (Latest Gross Costs - £m)

Appendix 2: TfL Project Assurance Sub Programme Review October 2018

### List of Background Papers:

None

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### Appendix 1: Schedule of constituent projects (Latest Gross Costs - £m)

Programme Name	Total EFC	PIC Authority			Actual Spend	Spend vs 2018 Request
	Latest Forecast including prior years	Current Authority	New Request	Total	2017/18 to P5 2018/19	Spend to go (overspend)
Air Quality	37	9	3	11	5	3
TfL Fleet	139	79	57	134	11	67
Vehicle Compliance Zone	178	52	8	60	30	23
Rapids and ZEC Taxi	79	41	5	47	8	33
Go Ultra Low Emission Zone	11	11	0	11	1	9
Emissions Surcharge	14	13	(1)	12	12	1
Road User Initiatives	7	0	7	7	0	0
Value Engineering	(2)	(2)				(2)
<b>Total Air Quality and Environment</b>	<b>465</b>	<b>202</b>	<b>78</b>	<b>280</b>	<b>67</b>	<b>135</b>

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## Appendix 2 – TfL Project Assurance Sub Programme Review October 2018

**Sub Programme:** Air Quality & Environment  
**Last PIC approval:** 13 October 2017  
**Board:** Programmes & Investment Committee 11 December 2018  
**Decision:** Programme & Project Authority of £280m to April 2023

### Key Facts

<b>EFC:</b> £394m	<b>Financial Authority:</b> £428m	<b>Current Project Authority:</b> £202m
<b>Risk Allowance:</b>	£53m (12% of costs to go). Cause or link from outputs to outcomes impossible to demonstrate until some schemes delivered.	

### Background

- Portfolio combines a number of projects to improve air quality by reducing vehicle emissions. Compliance with EU pollution levels targeted 2025.
- Portfolio includes ULEZ Expansion, expected to be managed as a new sub programme from December 2018.
- 

### Summary of Review Findings

- Programme has matured since 2017 review but recommendations echo those from last year.
- Strong and cohesive relationships between City Planning, Surface Sponsorship, PPD and City Hall. Narrative was consistent across all interviewees.
- Year to date spend (P07) £35m vs £46m budget. Year end forecast £85m vs £96m budget. Largely from revised accounting treatment of bus catalytic converter retro-fits.
- Governance through TfL Air Quality & Environment Portfolio Board and GLA Air Quality Investment Group. Respective roles and responsibilities unclear.
- Portfolio is largely existing projects. Programme level business case, benefits management and prioritisation not yet mature.

- Goal in MTS to achieve Zero Carbon by 2050 is very challenging. Roadmap for achieving the target with intermediate milestones under development.
- ULEZ Expansion is a significant contributor to achieving target. Development of technical solutions, complimentary measures and incentives to promote behavioural change still at large.
- Timely commercial support is main resource concern.

### Recommendations:

TfL Project Assurance recommends approval, with the following recommendations:

1. The Terms of Reference for the GLA Air Quality Investment Group and TfL Air Quality & Environment Portfolio Board should be updated to ensure alignment of roles and responsibilities.
2. A portfolio level Business Case incorporating the current projects should be developed with clear portfolio outcomes and Benefits Management Plan, and prioritisation framework.
3. A roadmap to achieve the MTS 2050 Zero Carbon target (with intermediate milestones) should be produced in the next 12 months.
4. Project Assurance should carry out an interim review in June 2019 to assess progress against recommendations.
5. The Integrated Assurance Plan should be reviewed with TfL Project Assurance each quarter.



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## Programmes and Investment Committee



Date: 11 December 2018

Item: Public Transport Programme 2019/20

This paper will be considered in public

### 1 Summary

Public Transport Programme 2019/20				
Existing Financial Authority 2017/18-2021/22	Estimated Final Cost (EFC) 2017/18-2021/22	Existing Programme and Project Authority 2017/18-2021/22	Additional Programme and Project Authority Requested 2019/20-2021/22	Total Programme and Project Authority Requested 2017/18-2021/22
£523m	£523m	£258m	£89m	£347m

**Authority Approval:** The Committee is asked to approve budgeted Programme and Project Authority of £347m for project renewals and enhancements across surface public transport modes.

**Outputs and Schedule:** The Public Transport Programme maintains and improves the safety, reliability and accessibility of stations, fleets and other assets across the Docklands Light Railway, London Overground, London Trams, London Buses, Emirates Air Line and Cycle Hire networks. The Programme also undertakes capacity and other improvements to support current and forecast increases in demand.

- 1.1 This paper sets out the request for the 2019/20 Programme and Project Authority for the Public Transport Programme (the Programme). It is the second annual submission to the Committee.
- 1.2 With the Programme now established, the focus of this year's paper is to:
  - (a) provide evidence of the Programme's successes and lessons learnt in 2017/18 and 2018/19;
  - (b) summarise the planned delivery in 2019/20;
  - (c) give assurance to the Committee on the progress of the Programme; and
  - (d) notify the Committee of proposed changes to the Programme's composition.

- 1.3 In December 2017, the Committee approved Programme and Project Authority of £258m, including £119m for 2017/18 and £149m for 2018/19.
- 1.4 This paper requests approval for Programme and Project Authority of £347m. This includes additional Programme and Project Authority of £89m, for delivery of projects in 2019/20 and subsequent years, and retains £258m of the original request. £59m of this original request will be re-profiled to support delivery of the Programme in 2019/20.
- 1.5 Table 1 provides a summary of the request and Appendix 1 shows the schedule of constituent projects and authorities.
- 1.6 This request covers financial years 2019/20-2021/22. The Programme will return annually to the Committee to renew and validate approval for future years.

**Table 1 Summary of the Programme and Project Authority request**

	For the Period 2017/18-2021/22 (£m)				
	Existing Financial Authority	Estimated Final Cost (EFC)	Existing Programme and Project Authority	Additional Authority Requested	Total Programme and Project Authority
Gross Expenditure	523	523	258	89	347
Income	129	129	30	11	41
Net Cost	394	394	227	78	306

## 2 Recommendation

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

- (a) approve additional Programme and Project Authority of £89m giving a total of £347m comprising:
- (i) £258m approved in December 2017 for 2017/18 and 2018/19, of which £59m will be re-profiled into 2019/20;
  - (ii) an additional £63m to undertake all remaining Public Transport Programme activities during 2019/20; and
  - (iii) up to £26m to undertake all Public Transport Programme activities for any project stage that is planned to commence in 2019/20 but may extend into subsequent years; and
- (b) note that Procurement Authority in respect of the various elements of the Public Transport Programme will be sought at officer level in accordance with TfL's Standing Orders.

### 3 The Public Transport Programme

- 3.1 The Programme is fundamental in delivering upon the aim within the Mayor's Transport Strategy (MTS) for 80 per cent of trips in London to be made on foot, by cycle or using public transport by 2041.
- 3.2 The Programme, through the coordinated and prioritised delivery of capital projects, maintains and promotes a safe, accessible and reliable public transport service. The Programme also undertakes the capacity enhancement works and other improvements required across stations, vehicle fleets and other services to meet current and forecast demand for public transportation in London.
- 3.3 Established in 2017, the Programme seeks to ensure an optimum balance between surface public transport renewal and enhancement projects to meet the Programme's objectives. Whether replacing sections of track and tunnel lighting, or upgrading signalling systems and expanding stations, the Programme delivers interventions required to provide a good public transport experience.
- 3.4 All surface public transport modes are currently within the Programme's scope: Docklands Light Railway, London Overground, London Trams, London Buses<sup>1</sup>, Emirates Airline and Cycle Hire.
- 3.5 A number of the Programme's constituent projects also contribute to providing new homes and jobs within London. These projects align with supporting London's Opportunity Areas, including the Royal Docks and Beckton Riverside (Docklands Light Railway projects), Canada Water and City Fringe / Tech City (London Overground projects) and Croydon (London Trams projects).
- 3.6 The Programme thus contributes to two of the three central themes within the MTS. Appendix 2 shows the Programme alignment with the more detailed policies of the MTS.
- 3.7 Programme-level objectives have been drafted to align with the MTS to ensure strategic alignment downstream within the Programme's constituent projects. The Programme's objectives are:
- (a) to define and deliver the right balance of capital projects to:
    - (i) meet the required levels of safety, reliability and accessibility (in accordance with statutory and other obligations) across all surface public transport modes;
    - (ii) support current and forecast increases in customer demand (in alignment with strategic priorities) across all surface public transport modes; and

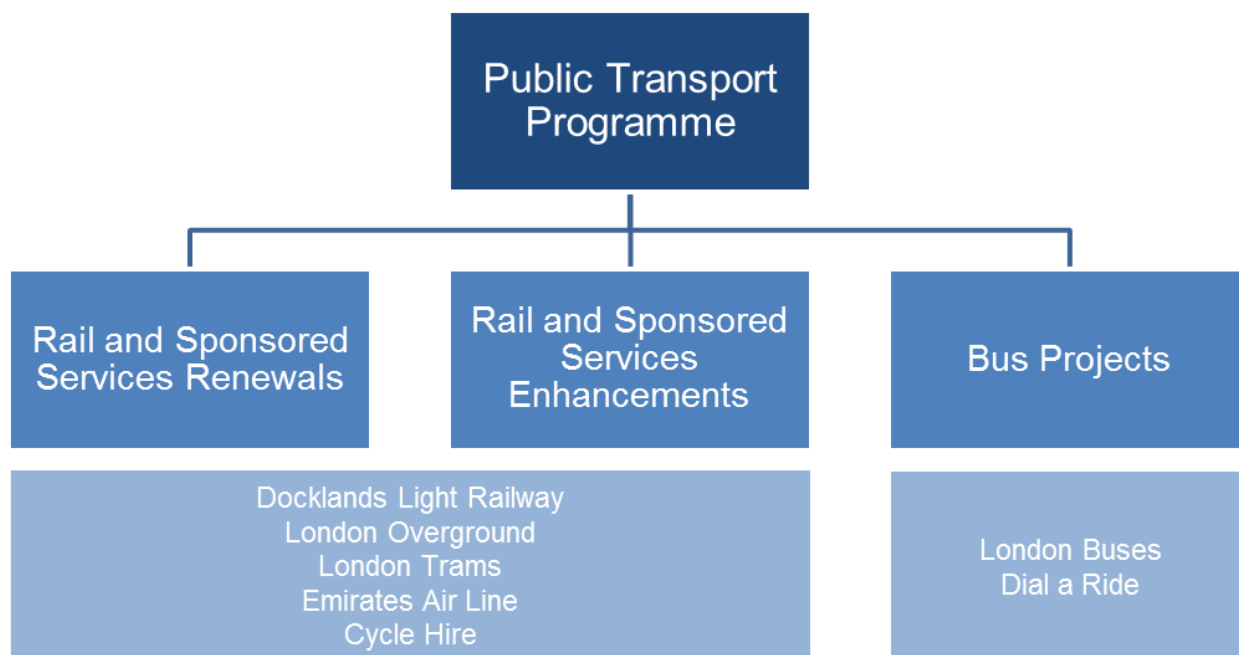
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<sup>1</sup> TfL's portfolio of London Bus projects spans a number of Programmes depending on their objective. For example, bus projects with the objective of reducing harmful emissions are within the Air Quality and Environment Programme. Other bus projects reside within the Surface Assets and Healthy Streets Programmes. The principal bus projects within the Public Transport Programme are Bus Safety Standard, Bus Driver Facilities and Demand Responsive Bus Trial. See also section 8.

- (iii) provide a good experience for current and prospective customers across all surface public transport modes; and
- (b) to ensure that value for money is achieved in the creation, acquisition, utilisation and maintenance of assets delivered through the Programme.

3.8 The Programme is comprised of three elements as shown in Figure 1.

**Figure 1 Overview of the Programme**



- 3.9 **Rail and Sponsored Services Renewals.** Projects that ensure stations, rolling stock, track, signalling, cable car infrastructure and other surface public transport assets and services remain safe, operable and accessible. These projects are selected through a process of comparative review and work bank prioritisation.
- 3.10 **Rail and Sponsored Services Enhancements.** Projects that meet and support growth in demand for travel by planning and delivering capacity, service and other improvements. These projects often align with other programmes and projects outside of TfL. For example, the expansion of White Hart Lane London Overground station to meet the demand forecasts associated with development in the local area.
- 3.11 **Bus Projects.** Activities across TfL’s buses and depots to provide a safe, reliable and accessible fleet and support the MTS vision for a growing, healthy London with reduced car dependency. These projects include development of the Bus Safety Standard, which will help deliver the MTS goal of no-one being killed on or by a London bus by 2030.
- 3.12 A number of significant milestones and successes have been achieved since the Programme was established in 2017. These are outlined in section 4. There have also been a number of delivery challenges and lessons learnt since the first

submission to the Committee in December 2017. These are outlined from paragraph 4.32.

- 3.13 The constituent projects of this request for 2019/20 Programme and Project Authority are detailed in section 5. Sections 6 and 7 cover the financial implications, challenges and opportunities for the Programme over the next 12 months.
- 3.14 This paper also notifies the Committee of a proposal to alter the composition of the Programme. This proposal is contained within section 8.
- 3.15 The Committee will continue to be updated on progress on a quarterly basis. The Programme's next annual submission to the Committee will be in December 2019.

## **4 Programme Delivery in 2017/18 and 2018/19**

### **Progress on recommendations made from the 2017 IAR**

- 4.1 TfL Project Assurance completed an Integrated Assurance Review (IAR) on the Programme that was submitted to the Committee meeting in December 2017. Eight recommendations were made and accepted. The Independent Investment Programme Advisory Group (IIPAG) supported the eight recommendations.
- 4.2 TfL Project Assurance tracks progress against recommendations as part of its continuous assurance process. They have confirmed that seven of the eight recommendations have been acted upon and are now closed.
- 4.3 IIPAG provided one additional recommendation. This was for the Programme to provide greater clarity on project costs and benefits so that their relative value and priority can be properly assessed, including impact assessments of any changes to funding levels. IIPAG note within their latest report that progress has been made and recommends that work continues.
- 4.4 Section 9 provides details of the most recent IAR on the Programme, which was completed in November 2018. The risk management theme from 2017 that has not been closed remains as a recommendation for the Programme, along with four additional recommendations. IIPAG have made two further recommendations.

### **Progress against 2017 Public Transport Programme paper commitments**

- 4.5 In December 2017, the Committee approved £119m of Programme and Project Authority for expenditure in 2017/18 and subsequent years. Of this, projects and programmes costing £104m were delivered within the period. The successes for the Programme are included from paragraph 4.20 onwards. The paragraphs below highlight strategy changes, value engineering initiatives and actions taken to mitigate project delays.
- 4.6 A new strategy for the Cycle Hire Transformation project to ensure improved operational capability and payment systems accounted for a £4m transfer to a new project for Cycle Hire PIN Entry Devices commencing in 2018/19.

- 4.7 Value engineering initiatives to date have delivered c. £300k of efficiencies through improved labour planning and a review of material specifications e.g. change from aluminium to plastic for noise barriers.
- 4.8 The remaining £11m below approved Programme and Project Authority resulted from a combination of project slippage and EFC revisions. The main contributing factors for project delays in 2017 were issues with commercial process, contractor engagement and inefficient possession planning strategies.
- 4.9 A number of key lessons in relation to possession planning for projects with Network Rail interfaces have been implemented for future works. This includes a review of additional labour requirements and equipment spares to maximise output during possessions.
- 4.10 The Programme's renewals portfolio has also reviewed the annual work bank process, commercial strategies and packages to ensure more efficient delivery for renewals project contracts.
- 4.11 Appendix 3 provides further detail of the comparison between 2017/18 outturn and the Programme and Project Authority request approved in the 2017 paper to the Committee.
- 4.12 In December 2017, the Committee approved £149m of Programme and Project Authority for expenditure planned in 2018/19. £95m is now forecast to be delivered through our projects and programmes over this period. Details of key changes and mitigations for the 2018/19 projects are detailed in the sections below.
- 4.13 A review of the projects included in the Programme has commenced and is detailed in section 8. A number of changes have been proposed to ensure that governance for each project is aligned to the strategic objectives. For example, £10m for Dial a Ride Fleet Renewal has been moved to the Air Quality and Environment Programme due to its contribution to air quality improvements.
- 4.14 There has also been re-profiling of a £10m third party funding contribution into 2019-2021, ensuring alignment of the project to a new programme received from the developer for a London Overground station.
- 4.15 The remaining c. £30m below approved Programme and Project Authority is due to project slippage and EFC reductions. The key contributing factors to the programme delays were resources, third party interface management (including Network Rail) and annualised programme planning, details of which are included as lessons learnt later in section 4.
- 4.16 In addition, for Renewals projects, issues with resources to provide engineering requirements, delivery support and approvals caused a significant delay. The portfolio has made changes in the process for the 2019/20 work bank to ensure more effective delivery. This includes early requirement development and work bank prioritisation to ensure a realistic programme for delivery prior to the start of the next financial year.
- 4.17 On London Rail projects, a programme of commercial training for project management staff has commenced focusing on conflict avoidance and claims



management. We are also exploring with the supply chain alternative contracting strategies with the intention of reducing claim situations once we engage with a contractor.

- 4.18 To proactively manage some of the Programme underspend, a combination of accelerated and new priority project expenditure in 2018/19 has ensured that net underspend is no greater than £54m. The revised project spend profiles are incorporated within this paper's authority request.
- 4.19 The 2018 TfL Business Plan, to be approved by the Finance Committee on 13 December 2018, will take into account the above for the profiling of future years' budgets.

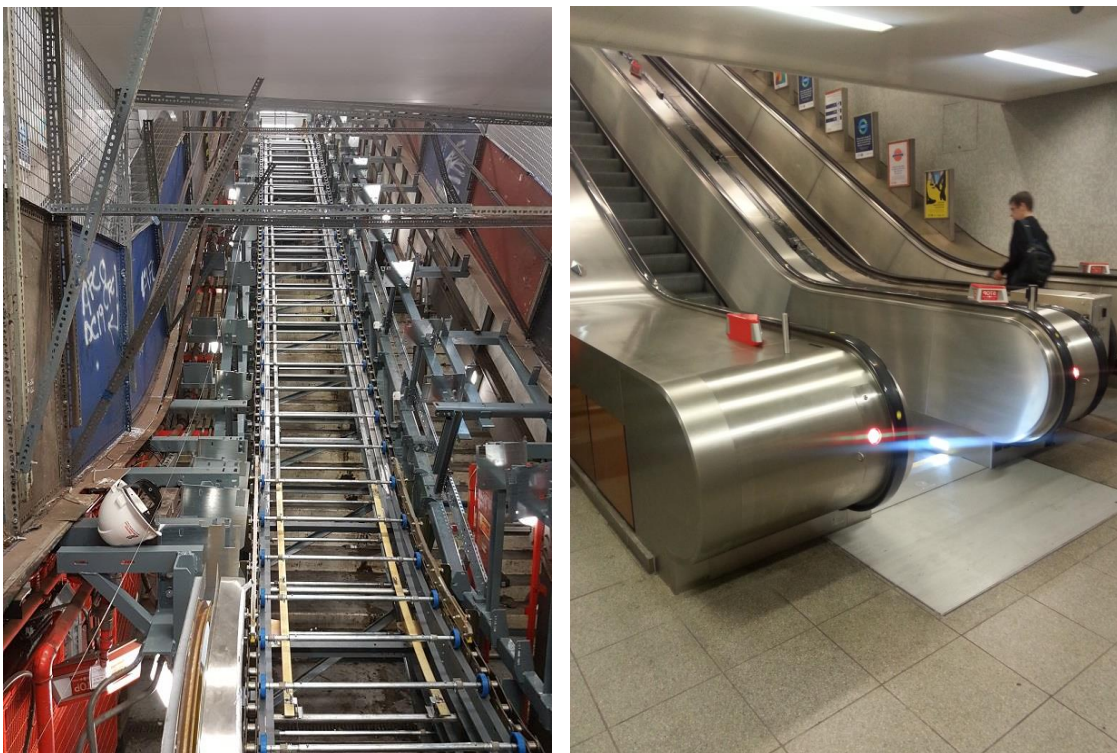
### **Successes achieved in 2017/18 and 2018/19**

- 4.20 A summary of the key achievements in each element of the Programme is given below.

### **Rail and Sponsored Services Renewals**

- 4.21 **Docklands Light Railway.** The first phase of the signalling border realignment project was completed to reduce conflicts in the signalling system. Projects on high voltage power and public address systems commenced to reduce the potential for power failures and meet with current EU and British Standards.
- 4.22 **London Overground.** An innovative in-truss replacement of two Rotherhithe station escalators was successfully undertaken. The tunnel lighting LED conversion project completed, reducing future operating costs. Conductor rail heating units were replaced to mitigate the risk of adverse weather impacts.

**Figure 2 Construction of the Rotherhithe station in-truss escalator replacement**



- 4.23 **London Trams.** Mid-life fleet refresh activities were completed, enabling these units to continue in-service. Track renewals in Croydon town centre and switchgear renewals in Addington Village were also successfully delivered.

**Figure 3 Renewal of the tram track sections in Croydon town centre**



- 4.24 **Sponsored Services.** Key safety risks were removed through the replacement of a number of corroding Cycle Hire signposts in Westminster.

#### **Rail and Sponsored Services Enhancements**

- 4.25 **Docklands Light Railway.** Two new escalators were installed at Limehouse station to improve interchange routes. Custom House station reopened following a scheduled closure. Royal Docks Enterprise Zone funding was secured for future improvements across a number of stations.

**Figure 4 Construction of Custom House station capacity upgrade**



- 4.26 **London Overground.** Twenty-four stations were upgraded on the West Anglia line after devolution to TfL. Upgrades to the siding at Willesden were completed. Extensive civil works were undertaken at the White Hart Lane and West Hampstead station enhancement projects.

**Figure 5 New White Hart Lane pre-cast passenger passageways**



- 4.27 **London Trams.** Automated operation was reinstated at East Croydon tram stop, permitting reintroduction of the third platform into operational service, thereby giving greater day-to-day operational flexibility. Two new trams were delivered to

the fleet on-programme and under-budget, which complemented the new timetable changes. As reported to the Safety, Sustainability and Human Resources Panel on December 5 2018, the Sandilands project progressed its workstreams, including launching the procurement of an automatic braking system to be installed across the fleet.

- 4.28 **Sponsored Services.** The Cycle Hire payment system was transferred to a new system for on-street, website, mobile application and contact centre payments. Contactless payment was also introduced at the docking station terminals.

### **Bus Projects**

- 4.29 **Bus Safety Standard.** TfL's plans to make buses in London the safest in the world were unveiled at a Bus Safety Summit in October 2018. The standard details the bus safety requirements all bus operators will need to adopt on new buses up to 2024, including a number of shorter-term safety features required from 2019.
- 4.30 **Bus Driver Facilities.** By the end of 2018/19, facilities for bus drivers will have been installed on up to 20 routes. These facilities will be located such that drivers can access them within the constraints of their scheduled breaks, preventing delays to bus services.
- 4.31 **Demand Responsive Bus Trial.** Procurement activities commenced for a 12-month trial. This trial will help TfL better understand whether a demand responsive bus service could improve public transport in outer London.

### **Lessons Learnt**

There are two principal lessons learnt to highlight within the Programme, the first relating to duration of authority and the second to Network Rail interface management.

- 4.32 Many Rail and Sponsored Services Renewals projects span a number of years. The previous process of obtaining annualised Programme and Project Authority can lead to inefficient procurement methods and even put projects and suppliers at risk. This year, the Programme and Project Authority request to the Committee includes up to £26m to undertake Programme activities for any project stage that is planned to commence in 2019/20 but may extend into subsequent years. £15m of the £26m is for Rail and Sponsored Services Renewals projects to deliver greater value for money in procurement and delivery.
- 4.33 The relationship with Network Rail has improved tangibly in the last 12 months. At a project-level this has been improved through regular engagement on a weekly basis, attendance at periodic programme boards, and a general improvement in the lines of communication. At senior management level periodic meetings have been established for both planning and discussing future works and as an escalation route. This has encouraged issues to be resolved at a project level, before needing to be escalated to a senior manager level.

## 5 Proposal: Programme Delivery in 2019/20

- 5.1 This Programme will deliver the renewals and enhancements capital programme to support achieving a good public transport experience for London and the aim within the MTS for 80 per cent of trips in London to be made on foot, by cycle or using public transport by 2041. The Programme will also continue to support the provision of new homes and jobs through improvements to surface public transport modes in key areas.
- 5.2 Over the period 2017/18-2021/22 it is anticipated that there will an increase in the amount of journeys across most of the surface public transport modes.

**Figure 6 Forecast increases in journeys over the period 2017/18-2021/22**



- 5.3 A marginal two per cent decrease in journeys is calculated for the Docklands Light Railway over the same period. Demand is expected to contract slightly due to the introduction of the Elizabeth line into operation. However journeys are anticipated to start trending upwards again from 2021/22.
- 5.4 A summary of the key plans in each element within the Programme is given below.

### **Rail and Sponsored Services Renewals**

- 5.5 **Docklands Light Railway.** The final phases of the signalling border realignment project and high voltage upgrade programme will be completed, reducing the probability of disruption and the time taken to resume normal service. Scheduled fleet, track and civil infrastructure renewals projects will all be undertaken within the year. Priority stations will be transferred over to LED lighting systems.
- 5.6 **London Overground.** Points components at critical sites will be replaced to reduce the potential for failure. Remote monitoring for the signalling system will be improved to give early warning in a greater number of circumstances. A complex transmission system replacement will be progressed through the detailed design stage.

- 5.7 **London Trams.** A series of ballasted track renewal works will be undertaken. Scheduled fixed asset and fleet projects will also be completed. Construction work will be underway to replace Blackhorse Lane bridge, which will return to operation the road network that spans the tram tracks.
- 5.8 **Sponsored Services.** Wide-based bollards at Santander docking stations in the London Borough of Westminster will be replaced. Renewal activities on the Emirates Air Line cableway will be undertaken.

### **Rail and Sponsored Services Enhancements**

- 5.9 **Docklands Light Railway.** The Custom House station capacity upgrade will complete, providing a robust interchange between the Docklands Light Railway and the Elizabeth Line to serve the ExCel exhibition centre. A series of customer information, signage and wayfinding interventions will also complete. The Royal Docks Enterprise Zone funding will be scoped and individual station enhancement projects initiated.
- 5.10 **London Overground.** Signalling upgrades will be undertaken to uplift the East London Line between Highbury Islington and Surrey Quays from 16 trains per hour to 18 trains per hour. A track protection warning system will be delivered between Gunnersbury and Richmond stations. The White Hart Lane and West Hampstead station upgrade projects will complete.
- 5.11 **London Trams.** Concept design for an expanded East Croydon tram stop will be undertaken in collaboration with Network Rail. Project options will be progressed to provide a better service provision east of Croydon. A number of workstreams within the Sandilands project will be delivered, including tunnel lighting upgrades, strengthened glazing and the roll-out of an automatic braking system across the fleet.
- 5.12 **Sponsored Services.** The next generation Cycle Hire back-office system will be designed and implementation of the system will commence.

### **Bus Projects**

- 5.13 **Bus Safety Standard.** Bus operators will implement the shorter-term measures required on all new buses, including installing technology that automatically limits the speed at which buses are able to travel and an audible alert for pedestrians and other road users to ensure awareness of the presence of buses.
- 5.14 **Bus Driver Facilities.** Facilities will have been installed on additional routes, resulting in more than 30 routes in total.
- 5.15 **Demand Responsive Bus Trial.** The trial will launch. The trial is likely to operate in an outer London borough with a fleet of up to ten vehicles.

## **The 2019/20 Programme – constituent projects and programmes**

- 5.16 The 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 three separate elements of the Programme, as detailed above: Rail and Sponsored Services Renewals; Rail and Sponsored Services Enhancements; and Bus Projects.
- 5.17 All projects contained within this request are included within the 2018 TfL Business Plan. Further detail of the request is shown within Appendix 1.
- 5.18 Milestones for the 2019/20 Programme will be developed throughout 2018/19 and will be subject to review prior to a decision made by the relevant officer.

**Table 2 Public Transport Programme – Constituent projects and the Programme and Project Authority requested**

Programme	Project Area	Financial Authority for 2017/18-2021/22	2019/20 Programme and Project Authority Request (£m)						
			2017/18 Investment	2018/19 Investment	2019/20 Investment	Incremental Cost to End of Stage	Total Programme and Project Authority for 2017/18-2021/22	Existing Programme and Project Authority for 2017/18-2018/19	Additional Programme and Project Authority Requested for 2019/20-2021/22
<b>Rail and Sponsored Services Renewals</b>	Docklands Light Railway	115	18	20	21	6	65	42	<b>22</b>
	London Overground	33	4	5	10	4	23	9	<b>13</b>
	London Trams	35	7	6	7	4	26	12	<b>14</b>
			Third Party:	1	-	-			
Sponsored Services	42	4	12	14	1	32	12	<b>19</b>	
		Third Party:	1	0	-				
<b>Rail and Sponsored Services Enhancements</b>	Docklands Light Railway	62	7	8	5	-	27	29	<b>-2</b>
			Third Party:	-	8	-			
	London Overground	173	44	36	18	1	121	92	<b>28</b>
			Third Party:	1	20	-			
	London Trams	31	3	14	10	2	29	33	<b>-3</b>
	Sponsored Services	11	9	1	0	0	10	19	<b>-8</b>
Third Party:			0	-	-				
Rail Station Works	4	0	0	0	-	4	0	<b>4</b>	
		Third Party:	3	1	-				
<b>Bus Projects</b>	London Bus and Dial a Ride	36	8	7	7	8	29	17	<b>12</b>
			Third Party:	0	-	-			
<b>Other</b>	Over Programming	-19	0	-19	0	0	-19	-8	<b>-11</b>
<b>TOTAL</b>	<b>Gross</b>	<b>523</b>	<b>104</b>	<b>95</b>	<b>122</b>	<b>26</b>	<b>347</b>	<b>258</b>	<b>89</b>



## 6 Financial Implications

- 6.1 The draft 2018 TfL Business Plan sets out the plans for the transport network over the five years 2019/20 to 2023/24 and will provide the financial authority needed to deliver the scope of the work set out in this paper.
- 6.2 A summary of the draft 2018 TfL Business Plan and the requested Programme and Project Authority by financial year is shown in Table 3.

**Table 3 Public Transport Programme Business Plan costs to 2021/22**

Public Transport Programme		Outturn (£m)	Draft 2018 TfL Business Plan				Total
		2017/18	2018/19	2019/20	2020/21	2021/22	
Programme Total		104	114	122	108	94	<b>542</b>
Over-Programming		0	-19	0	0	0	<b>-19</b>
<b>Total</b>		<b>104</b>	<b>95</b>	<b>122</b>	<b>108</b>	<b>94</b>	<b>523</b>
Split by Funding Source	TfL Funding	98	89	93	53	61	<b>394</b>
	Third Party Funding	6	6	29	55	33	<b>129</b>
Project Authority							
Total Request		104	95	122	26	0	<b>347</b>
Approved Authority		119	139*	0	0	0	<b>258</b>
New Request		-15	-44	122	26	0	<b>89</b>
Future Authority Requests		-	-	-	83	94	<b>176</b>

\*Adjusted to remove £10m Dial a Ride Programme and Project Authority (see section 8)

- 6.3 The rationale behind the Programme and Project Authorities requested in this paper is to ensure that all projects within the Programme have sufficient authority for 2019/20, and that relevant projects have sufficient authority up to 2021/22 where commitments will be made in 2019/20.
- 6.4 The Programme includes £19m of over-programming in 2018/19 to recognise that slippage may occur. While proactive measures will be undertaken to mitigate project delays as far as is possible, it is appropriate to assume there will be a level of risk actualisation that affects delivery. This is particularly the case with regards to third-party funding that is released according to external milestones.
- 6.5 Each project is required to actively manage risk. Part of active risk management involves ensuring that adequate financial provision is made to fund mitigation activity. For example, to keep delivery on track or to cover any additional costs that may be incurred in the event that mitigation is not achievable.
- 6.6 Prior to the detailed design stage of the project lifecycle risk provision will typically be calculated as a percentage of base cost. These percentages are guided by the TfL estimating manual. At detailed design and through to project close a detailed

cost-loaded risk register will be developed and maintained and a Quantified Risk Assessment produced.

- 6.7 Most projects within the Programme hold a risk provision at P50. The P50 value suitably reflects the level of maturity of the projects and project delivery processes. For Rail and Sponsored Services Renewals projects work bank re-prioritisation is an available option in the event that risk events materialise beyond project-level provision. This ensures that priority asset concerns remain adequately funded.
- 6.8 The authority requested contains an appropriate level of risk provision for each project. While there will be a risk register developed for the Programme, there will not be any strategic risk budget. All risk will be held within the project and, in accordance with agreed governance arrangements, will be approved for drawdown by the relevant officer, considering the matter with the relevant Project, Programme or Portfolio Board.

## 7 Challenges and Opportunities

- 7.1 Good progress has been made in the delivery of the Programme to meet its objectives and contribute to the aim within the MTS for 80 per cent of trips in London to be made on foot, by cycle or using public transport by 2041. The Programme has ambitious plans for 2019/20 (section 5). These plans are achievable, but there are recognised challenges to be managed and opportunities to be realised to ensure successful future delivery. These include:

- (a) **External stakeholder collaboration.** A number of the Programme's projects have significant external stakeholder interest. Project success therefore depends on management of, and collaboration with, these stakeholders. This can range from contractual third party funding agreements to formal project collaborations or more general stakeholder engagement activities.

A key Programme challenge (and opportunity) is to ensure that good practice in stakeholder engagement in one area is shared across the Programme. This follows the establishment of an effective collaboration and escalation process between TfL and Network Rail. See also paragraph 4.33.

- (b) **Third party funding.** An increasing proportion of the Programme's Rail and Sponsored Services Enhancement projects is, or will be, partially or fully third-party funded. This provides an opportunity for the Programme to deliver surface public transport improvements above the level affordable solely within the TfL budget. These opportunities can be significant – for example the Royal Docks Enterprise Zone.

The Programme's challenge is to ensure that these agreements are, and remain, aligned with TfL's and the Mayor's strategic objectives, and to manage the delivery of agreed projects within the financial envelope of the third party funding secured. This will be achieved in-part through early-lifecycle involvement of the Programme's sponsor and delivery teams in development of proposals and funding agreements.

## 8 Programme Composition – Change Proposal

- 8.1 The Programme comprises a wide range of projects across the surface public transport modes. Following the Programme's first annual submission to the Committee in December 2017, the Dial a Ride Fleet Renewal project was transferred from the Public Transport Programme to the Air Quality and Environment Programme. The project's objective of improving the exhaust emission ratings of part of TfL's Dial a Ride fleet in advance of the introduction of the Ultra Low Emission Zone (Central) aligned better with the Air Quality and Environment Programme.
- 8.2 As the Surface Transport Programmes have matured over 2018, further opportunities to better align a minority of projects have emerged. Appendix 4 contains an overview of the proposal as it relates to the Public Transport Programme.
- 8.3 Appendix 4 and the sections below contain a working proposal. Upon finalisation of the proposal, we will report to the Committee at the next quarterly update report (or next annual submission – whichever is earlier) for each of the affected Programmes.
- 8.4 The establishment of the new Surface Technology Programme within TfL, which is due to provide its first annual submission to the Committee in March 2019, provides the opportunity to integrate those Public Transport Programme projects that have a significant technology-focus. These projects are:
- (a) **Dial a Ride Online Registration.** To provide customers with the option to register for the Dial a Ride service via a new online form;
  - (b) **Cycle Hire PIN Entry Device.** Replacement of the life-expired payment system and customer-facing PIN entry device at each Cycle Hire terminal; and
  - (c) **Emirates Air Line Passenger Communications.** Replacement of the customer information systems within the Emirates Air Line cable cars.
- 8.5 The Surface Assets Programme is more established, having been created alongside the Public Transport Programme (and others) in 2017. The Surface Assets Programme currently includes the renewal activities required for River Services.
- 8.6 To complement River Services renewals, a new line item is proposed to be created within the Public Transport Programme for River Services enhancements. This will principally be for pier enhancement projects. However funding for this line item will need to be identified.
- 8.7 The Victoria Coach Station toilet renewal project is proposed to move from the Public Transport Programme to the Surface Assets Programme. This will ensure that all projects associated with the Victoria Coach Station reside within the same Programme.

8.8 Bus Projects is currently one of the three elements making up the Public Transport Programme. Discussions are on-going within TfL on the most suitable governance structure for bus projects, as these projects also have objectives that align with other Programmes, such as Air Quality and Environment and Surface Assets. The proposal for any Bus Projects move is still under review.

## **9 Assurance**

9.1 TfL Project Assurance conducted an IAR on the Programme in November 2018. The IAR followed eight lines of inquiry to determine the Programme's readiness to deliver its outcomes. An independent review was also undertaken by IIPAG at the same time.

9.2 There were no critical issues identified through the review. Seven secondary recommendations were made, for which TfL provided a management response.

9.3 An Integrated Assurance Plan (IAP) for the Programme over the following 12 months, agreed by the relevant Directors and Head of Assurance, was a required product for the review. The Programme's IAP sets out projects and programmes within the Programme that are expected to undertake an IAR in 2019.

### **List of appendices to this paper:**

Appendix 1: Schedule of Constituent Projects and Authorities

Appendix 2: Programme Alignment with Mayor's Transport Strategy Policy

Appendix 3: 2017/18 Outturn Compared to Approved Programme and Project Authority

Appendix 4: Proposed Changes to the Public Transport Programme Composition

### **List of background papers:**

IIPAG and TfL Assurance Reports

Management response to IIPAG and TfL Assurance Reports

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## Appendix 1: Schedule of Constituent Projects and Authorities

Programme / Project Area	Project	Total Programme and Project Authority for 2017/18-2021/22 (£m)	Existing Programme and Project Authority for 2017/18-2018/19 (£m)	Additional Programme and Project Authority Requested for 2019/20-2021/22 (£m)
<b>Rail and Sponsored Services Renewals</b>	Docklands Light Railway Infrastructure Renewals	64.8	42.3	22.5
	London Overground Infrastructure Renewals	4.5	2.6	1.9
	London Overground Asset Maintenance	18.3	6.7	11.6
	London Trams Asset Maintenance	24.2	12.2	12.0
	London Trams Blackhorse Lane Bridge	1.7	0.0	1.7
	Emirates Air Line Infrastructure	2.8	1.7	1.1
	Cycle Hire Renewals	6.8	10.4	-3.6
	Cycle Hire Brixton	0.7	0.0	0.7
	Cycle Hire Pin Entry Device	19.1	0.0	19.1
	Victoria Coach Station Toilets	2.1	0.0	2.1
<b>TOTAL</b>	<b>Gross</b>	<b>145.0</b>	<b>76.0</b>	<b>69.1</b>
<b>Rail &amp; Sponsored Services Enhancements - DLR</b>	North Route Double Track	6.6	0.0	6.6
	3 Car East Route	-0.3	0.0	-0.3
	Stratford International Extension	0.0	-0.3	0.4
	Vehicle Modernisation	0.3	0.9	-0.6
	Rail Vehicle Access Regulations	0.9	1.1	-0.3
	Future Depots	0.2	0.5	-0.3
	Beckton Depot Shed	0.1	0.4	-0.3
	Limehouse Escalators	3.8	5.6	-1.9
	Custom House	13.0	17.3	-4.3
	Customer Experience	2.3	3.3	-1.0
<b>TOTAL</b>	<b>Gross</b>	<b>26.9</b>	<b>28.9</b>	<b>-1.9</b>
<b>Rail and Sponsored Services Enhancements - London Overground</b>	Gospel Oak-Barking Electrification	2.4	2.4	-0.0
	Gospel Oak-Barking Electrification (Network Rail works)	20.0	20.0	0.0
	Stations Programme	11.3	10.6	0.7
	Willesden DMU	1.9	2.1	-0.1
	Old Oak Common	2.7	0.0	2.6
	White Hart Lane	30.6	20.0	10.7
	Stratford to Angel Road	-5.0	-5.0	0.0
	NLR Concession Assets	16.1	13.7	2.4
	London Overground Capacity infrastructure Project	5.3	6.1	-0.8
	NLR Station Upgrade	-0.1	0.0	-0.1
	East London Line Extension	15.1	0.0	15.1
East London Line Minor Works	3.6	1.0	2.6	

Programme / Project Area	Project	Total Programme and Project Authority for 2017/18-2021/22 (£m)	Existing Programme and Project Authority for 2017/18-2018/19 (£m)	Additional Programme and Project Authority Requested for 2019/20-2021/22 (£m)
	New Bermondsey Station	3.9	10.7	-6.9
	NLR / ELR Rolling Stock	-0.3	0.0	-0.3
	West Anglia Devolution Works	7.3	7.4	-0.1
	Noise Barriers	0.8	0.0	0.7
	Train Protection Warning System	3.6	3.1	0.5
	Chingford Accommodation	1.6	0.0	1.5
<b>TOTAL</b>	<b>Gross</b>	<b>120.7</b>	<b>92.2</b>	<b>28.5</b>
<b>Rail and Sponsored Services Enhancements - London Trams</b>	London Trams Assets	8.6	6.7	1.8
	Croydon Capacity Works (previously Dingwall Loop)	5.4	9.6	-4.3
	Tramtrack Assets	2.0	2.0	0.0
	Wimbledon line Enhancement	0.9	0.3	0.6
	Elmers End Works	0.4	5.3	-4.9
	Sandilands	12.1	8.8	3.3
<b>TOTAL</b>	<b>Gross</b>	<b>29.2</b>	<b>32.6</b>	<b>-3.4</b>
<b>Rail and Sponsored Services Enhancements - Sponsored Services</b>	Cycle Hire Intensification	0.3	0.0	0.3
	Cycle Hire Olympic Park Extension	0.1	0.0	0.1
	Cycle Hire Transformation	9.3	18.4	-9.0
	Cycle Hire System Improvements	0.8	0.5	0.2
<b>TOTAL</b>	<b>Gross</b>	<b>10.5</b>	<b>18.9</b>	<b>-8.4</b>
<b>Rail and Sponsored Services Enhancements - Rail Station Works</b>	Rail Station Works	4.4	0.0	4.4
<b>TOTAL</b>	<b>Gross</b>	<b>4.4</b>	<b>0.0</b>	<b>4.4</b>
<b>Bus Projects</b>	Dial a Ride Online Registration	4.0	0.0	4.0
	Dial a Ride Mobile Units	0.3	0.0	0.3
	New Routemaster Battery Renewals	5.3	6.9	-1.6
	Demand Responsive Buses Trial	0.7	0.0	0.7
	New Routemaster	7.1	7.1	-0.0
	East London Bus Garage	0.0	0.9	-0.9
	Bus Safety Standard	4.2	2.4	1.8
	Bus Drivers Facilities	7.1	0.0	7.1
<b>TOTAL</b>	<b>Gross</b>	<b>28.8</b>	<b>17.3</b>	<b>11.6</b>
<b>Other</b>	Over Programming	-19.0	-8.3	-10.7
<b>TOTAL</b>	<b>Gross</b>	<b>-19.0</b>	<b>-8.3</b>	<b>-10.7</b>
<b>GRAND TOTAL</b>	<b>Gross</b>	<b>347</b>	<b>258</b>	<b>89</b>

## Appendix 2: Programme Alignment with Mayor’s Transport Strategy Policy

Policy	Programme Project Example
<b>A good public transport experience</b>	
<p><b>Policy 11</b> – ‘The Mayor [...] will work to eliminate deaths and serious injuries from London’s rail, Tube, London Overground, DLR, tram, river and cable car services.’</p>	<p>London Overground track protection warning system</p>
<p><b>Policy 13</b> – ‘The Mayor [...] will seek to make the public transport network easier and more pleasant to use, enabling customers to enjoy comfortable, confident, safe and secure, informed and stress-free travel.’</p>	<p>Cycle Hire mobile application improvements</p>
<p><b>Policy 14</b> – ‘The Mayor [...] will seek to enhance London’s streets and public transport network to enable disabled and older people to more easily travel spontaneously and independently, making the transport system navigable and accessible to all and reducing the additional journey time that disabled and older users can experience.’</p>	<p>Docklands Light Railway customer experience works</p>
<p><b>Policy 15</b> – ‘The Mayor [...] will transform the quality of bus services so that they offer faster, more reliable, accessible, comfortable and convenient travel by public transport, while being integrated with, and complementing, the rail and Tube networks.’</p>	<p>New Routemaster buses</p>
<p><b>Policy 16</b> – ‘The Mayor [...] will seek to transform London’s rail-based services to provide safer, modern, reliable, integrated, accessible and user friendly services, with improved journey times and an increase in capacity of at least 80 per cent by 2041 to tackle crowding and facilitate mode shift to rail.’</p>	<p>Two new trams to enable timetable improvements</p>
<b>New homes and jobs</b>	
<p><b>Policy 21</b> – ‘The Mayor [...] will ensure that new homes and jobs in London are delivered in line with the transport principles of Good Growth for current and future Londoners by using transport to:</p> <ul style="list-style-type: none"> <li>i. Create high-density, mixed-use places, and</li> <li>ii. Unlock growth potential in underdeveloped parts of the city.’</li> </ul>	<p>London Overground New Bermondsey Station</p>

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## Appendix 3: 2017/18 Outturn Compared to Approved Programme and Project Authority

### 2017/18 Approved Authorities versus Outturn – Selected Projects

Project	2017/18 Programme and Project Authority Deltas (Actual)	2017/18 Outturn
Docklands Light Railway Custom House station capacity upgrade	£3m slippage into 2018/19 and 2019/20 £1m reduction to align with a revised total project EFC of £16m	Project works totalling £5m were delivered
Cycle Hire Transformation	£4m reduction to align with a revised total project EFC of £22m	Project works totalling £8m were delivered
London Overground White Hart Lane station upgrade	£2m slippage into 2018/19	Project works totalling £5m were delivered

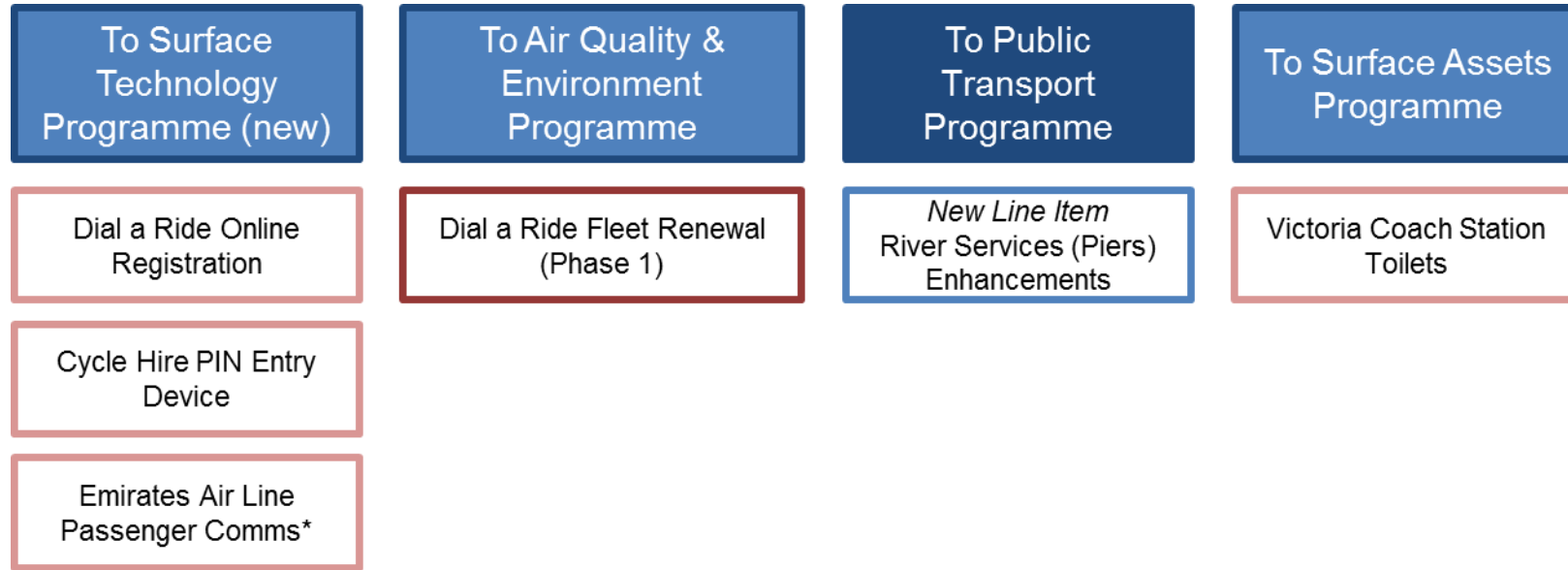
Programme / Project Area	Project	December 2017 Programme and Project Authority Approval for 2017/18	2017/18 Outturn (£m)	Variance (Positive Number is Underspend)
Rail and Sponsored Services Renewals	Docklands Light Railway Infrastructure Renewals	18.0	18.3	-0.3
	London Overground Infrastructure Renewals	1.3	0.8	0.5
	London Overground Asset Maintenance	4.1	2.9	1.1
	London Trams Asset Maintenance	7.8	7.3	0.5
	Emirates Air Line Infrastructure	0.8	0.3	0.5
	Cycle Hire Renewals	1.9	1.8	0.1
	Cycle Hire Brixton	0.0	0.7	-0.7
	Cycle Hire Pin Entry Device	0.0	0.9	-0.9
<b>TOTAL</b>	<b>Gross</b>	<b>33.9</b>	<b>33.2</b>	<b>0.8</b>
Rail and Sponsored Services Enhancements - Docklands Light Railway	3 Car Bank-Lewisham	0.1	0.0	0.0
	3 Car East Route	0.0	-0.3	0.3
	Stratford International Extension	-0.3	0.0	-0.4
	Vehicle Modernisation	0.3	0.0	0.3
	Rail Vehicle Access Regulations	0.8	0.4	0.4
	Future Depots	0.2	0.0	0.2
	Beckton Depot Shed	0.4	-0.1	0.5

Programme / Project Area	Project	December 2017 Programme and Project Authority Approval for 2017/18	2017/18 Outturn (£m)	Variance (Positive Number is Underspend)
	Limehouse Escalators	2.3	2.0	0.3
	Custom House	8.4	4.8	3.6
	Customer Experience	0.7	0.0	0.7
<b>TOTAL</b>	<b>Gross</b>	<b>12.9</b>	<b>6.9</b>	<b>6.0</b>
<b>Rail and Sponsored Services Enhancements - London Overground</b>	Gospel Oak-Barking Electrification	0.7	2.4	-1.7
	Gospel Oak-Barking Electrification (Network Rail works)	20.0	20.0	0.0
	Stations Programme	4.0	3.2	0.8
	Willesden DMU	2.1	0.7	1.4
	Old Oak Common	0.0	2.8	-2.7
	White Hart Lane	6.8	4.5	2.2
	Stratford to Angel Road	-5.0	-5.0	0.0
	NLR Concession Assets	6.0	6.3	-0.4
	London Overground Capacity Infrastructure Project	2.4	0.6	1.8
	NLR Station Upgrade	0.0	-0.1	0.1
	New Bermondsey Station	0.5	0.0	0.5
	NLR / ELR Rolling Stock	0.0	-0.3	0.3
	West Anglia Devolution Works	7.4	7.3	0.1
	Noise Barriers	0.0	0.2	-0.1
Train Protection Warning System	1.8	1.4	0.4	
<b>TOTAL</b>	<b>Gross</b>	<b>46.7</b>	<b>44.1</b>	<b>2.6</b>
<b>Rail and Sponsored Services Enhancements - London Trams</b>	London Trams Assets	-2.6	-1.9	-0.7
	Croydon Capacity Works (previously Dingwall Loop)	1.0	0.4	0.6
	Tramtrack Assets	2.0	2.0	-0.1
	Wimbledon line Enhancement	0.3	0.3	0.0
	Elmers End Works	1.7	0.2	1.6
	Sandilands	4.3	2.4	1.9
<b>TOTAL</b>	<b>Gross</b>	<b>6.7</b>	<b>3.4</b>	<b>3.3</b>
<b>Rail and Sponsored Services Enhancements - Sponsored Services</b>	Cycle Hire Intensification	0.0	0.1	-0.1
	Cycle Hire Olympic Park Extension	0.0	0.1	-0.1
	Cycle Hire Transformation	12.4	8.2	4.2
	Cycle Hire System Improvements	0.2	0.1	0.1
<b>TOTAL</b>	<b>Gross</b>	<b>12.6</b>	<b>8.5</b>	<b>4.1</b>
<b>Rail and Sponsored Services Enhancements - Rail Station Works</b>	Rail Station Works	0.0	0.1	0.0

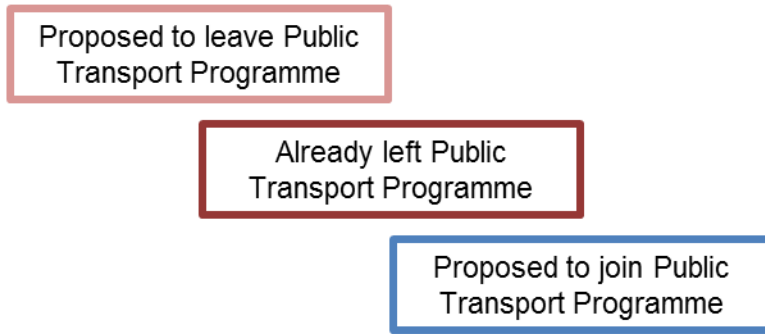
Programme / Project Area	Project	December 2017 Programme and Project Authority Approval for 2017/18	2017/18 Outturn (£m)	Variance (Positive Number is Underspend)
<b>TOTAL</b>	<b>Gross</b>	<b>0.0</b>	<b>0.1</b>	<b>0.0</b>
	Dial a Ride Mobile Units	0.0	0.3	-0.3
	New Routemaster	7.1	7.1	0.0
	Bus Safety Standard	1.0	0.1	0.9
<b>TOTAL</b>	<b>Gross</b>	<b>8.1</b>	<b>7.5</b>	<b>0.6</b>
<b>Other</b>	Over Programming	-2.0	0.0	-2.0
<b>TOTAL</b>	<b>Gross</b>	<b>-2.0</b>	<b>0.0</b>	<b>-2.0</b>
<b>GRAND TOTAL</b>	<b>Gross</b>	<b>119</b>	<b>104</b>	<b>15</b>

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## Appendix 4: Proposed Changes to the Public Transport Programme Composition



**Key:**



\* Currently forms part of the Emirates Air Line Infrastructure project

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## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** DLR Rolling Stock Replacement Programme

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**This paper will be considered in public**

### 1 Summary

DLR Rolling Stock Replacement Programme
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<p><b>Authority Approval:</b> The Committee is requested to grant additional Programme and Project Authority for activities relating to the procurement of Docklands Light Railway trains and the supporting work streams, including expansion of the DLR depot at Beckton and Procurement Authority to let the rolling stock contract.</p>
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<p><b>Outputs and Schedule:</b> 43 fixed formation trains to replace two-thirds of the Docklands Light Railway fleet and to provide additional capacity to support housing and employment growth. The trains are intended to enter into service between 2023 and 2025.</p>
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- 1.1 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 contents of this paper and the related paper on Part 2 of the agenda and requested to:**

- (a) **note that Financial Authority of the amount set out in the paper on Part 2 of the agenda exists for delivery of the DLR Rolling Stock Replacement Programme, including the design, supply and manufacture of 43 replacement DLR trains, supply of spares and fleet support services, expansion of the DLR depot at Beckton and other related activities (the Programme);**
- (b) **approve additional Programme and Project Authority for the amount set out in the paper on Part 2 of the agenda for delivery of the Programme;**
- (c) **approve Procurement Authority up to the maximum amount stated in the paper on Part 2 of the agenda for Docklands Light Railway Limited (DLRL) to enter into the following agreements with the bidder identified in the paper on Part 2 of the agenda:**
  - i. **a manufacture and supply agreement for the design, supply and manufacture of replacement DLR trains (MSA); and**

- ii. **a fleet support agreement for the supply of spares and supporting services (FSA), with a term of 35 years (expiring in 2061) and a fixed and variable scope, which allows DLRL to call off spares supply and services as required; and**
- (d) **subject to Financial Authority being in place, delegate approval of additional Programme and Project Authority and Procurement Authority for DLRL to enter into the MSA, up to a maximum amount as stated in the paper on Part 2 of the agenda to Delegated Officers, to reflect any movement in exchange rates applicable to capital expenditure under the MSA prior to the date of execution of the MSA.**

### **3 Background**

- 3.1 Docklands Light Railway currently operates with a mixed fleet of 149 Light Rail Vehicles (LRVs)<sup>1</sup> supplied by Bombardier. The network now carries over 119 million passengers per year and demand is predicted to grow considerably.
- 3.2 The B90/92 LRVs, which make up two-thirds of the DLR fleet, have reached the end of their 25-year design life. Evidence of this is the number of age related issues. This is being managed pro-actively to ensure that a safe and reliable service is sustained but vehicle availability may be compromised if the fault rate accelerates.
- 3.3 At the same time, committed development around the DLR network is predicted to use up existing capacity around the Isle of Dogs and Royal Docks by 2021. Additional trains are needed to support this housing and employment growth. There are already plans in place for around 100,000 additional homes across the area served by DLR, and there could be 100,000 more, should more low-density land be released for redevelopment, as is now being proposed by the Greater London Authority (GLA) for the Royal Docks and is expected to be the case for other parts of Docklands over the next 20 years.

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<sup>1</sup> A single Light Rail Vehicle (LRV) on the DLR is made up of a 28 metre long articulated vehicle. These are operated as two (56 metre long) or three (84 metre long) LRV consists.



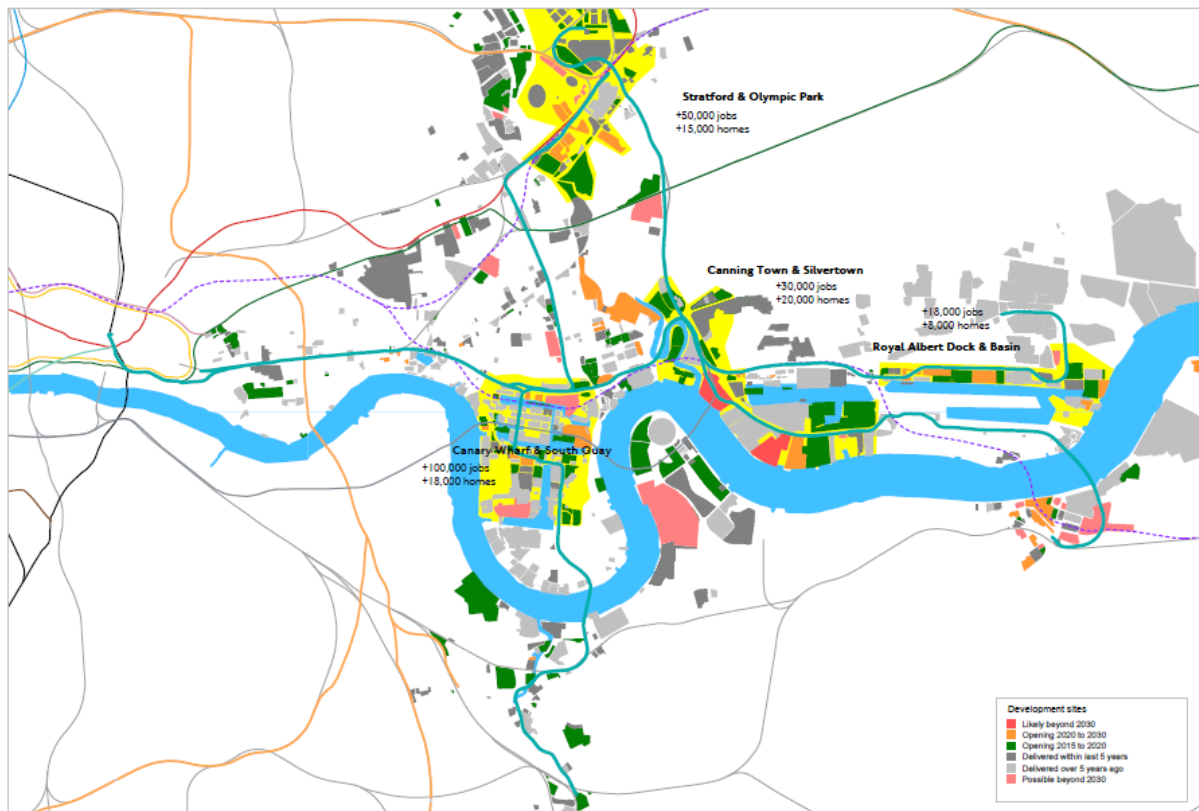


Figure 1 - Docklands Development Sites

3.4 Replacing the life expired fleet will contribute to delivery of the Mayoral objectives and to the TfL and London Rail objectives in a number of ways. Including to:

- (a) support population and employment growth across the network, especially planned development in the Royal Docks, the Queen Elizabeth Olympic Park and Isle of Dogs;
- (b) provide crowding relief through increasing capacity;
- (c) improve resilience and reliability by replacing life expired B90/92 LRVs with modern, reliable trains that are fit for purpose;
- (d) improve customer satisfaction by increasing the amount of usable space available on trains, as well as improving ride quality and reducing journey times; and
- (e) increase revenue by accommodating predicted demand and drawing new customers onto a modern fleet of trains with features that provide an improved customer experience.

3.5 In March 2017, budgeted Programme and Project Authority was granted for activities relating to the procurement of the replacement rolling stock.

3.6 An Invitation to Negotiate (ITN) for the replacement rolling stock was issued in November 2017. Tenders were returned by three bidders on 1 June 2018. The tender is for a base order of 43 trains with options for up to an additional 34 trains. Tender evaluation is complete. The concept design for Beckton Depot has been

completed. The overarching procurement strategy for Beckton Depot has been approved.

- 3.7 An affordable spend profile has been developed for this programme and included in the 2019/20 – 2023/24 TfL Business Plan<sup>2</sup>.
- 3.8 A successful bid to the Ministry of Housing, Communities and Local Government Housing and Infrastructure Fund (HIF) included funding for an additional 14 DLR trains. A separate authority request will be made for the additional trains as part of a wider HIF authority request.

## **4 Proposal**

### **Preferred Option**

- 4.1 The preferred option is a fixed formation walk through train following the same design principles as the recent procurement of LU S7 and S8 stock, Elizabeth line Class 345, Thameslink Class 700 and London Overground Class 710 trains.
- 4.2 A minimum base order of 43 new three-car equivalent trains is required; 33 to replace the B90/92 trains and an additional ten to support housing and employment growth in the Royal Docks. The MSA also includes options for up to 34 additional trains to support further development on the Isle of Dogs and Queen Elizabeth Olympic Park. Figure 2 illustrates the intended service pattern if all option trains were purchased.

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<sup>2</sup> Subject to the 2019/20 - 2023/24 Business Plan being signed off on 13 December 2018 by the TfL Finance Committee

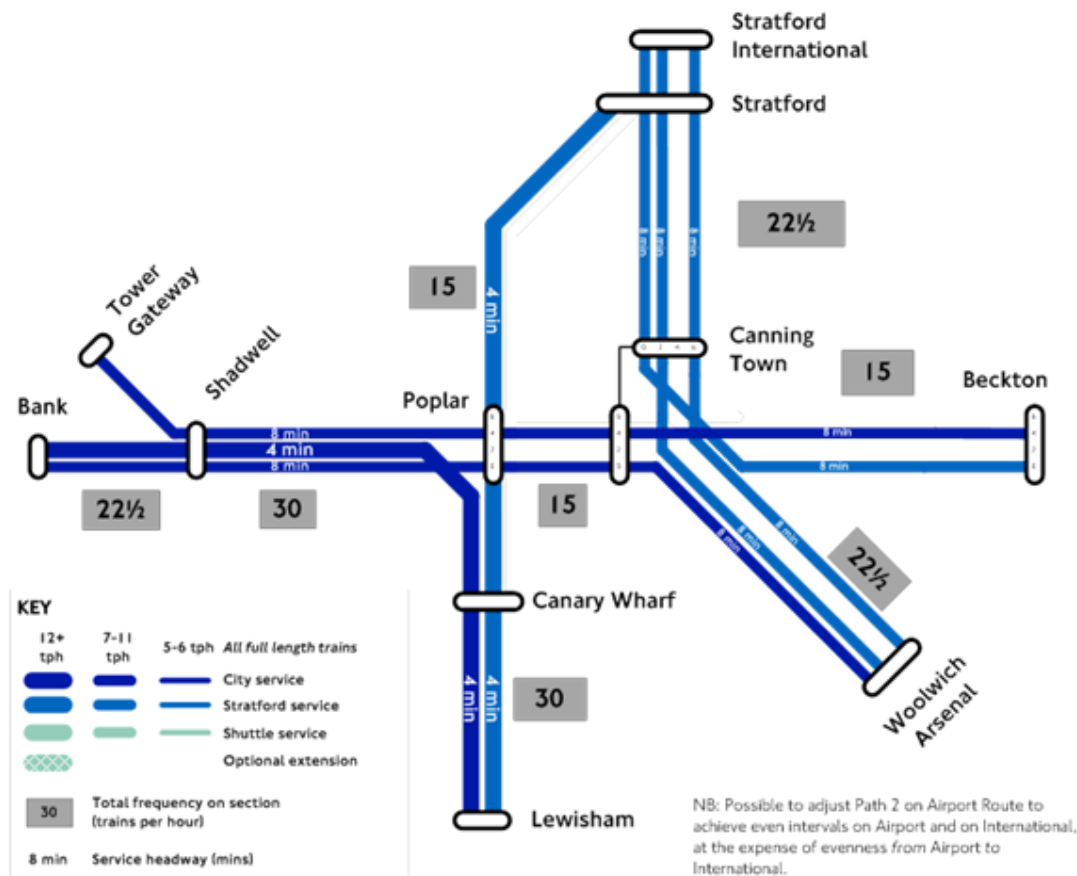


Figure 2 - Proposed service pattern if all option trains were purchased

- 4.3 Moving to a new design of train is expected to increase capacity by at least ten per cent. It will also provide improved customer experience through real time information screens, climate control and mobile device charging points. The trains will have much improved reliability too, with 50,000km Mean Distance Between Service-Affecting Failures being specified.
- 4.4 A number of supporting work streams are necessary, the most significant being the expansion of the DLR depot at Beckton. The expanded depot will be accommodated within the current footprint of land owned by TfL. A planning application was submitted to the London Borough of Newham in September 2018.
- 4.5 The replacement trains are required to avoid expensive, life extension costs and additional operating costs associated with staffing stations due to overcrowding. It will also minimise the amount of 'patch and mend' expenditure required on the current fleet.
- 4.6 There will be no negative impacts on equality or diversity. As with the current DLR fleet, train to platform access will be compliant with the Rail Vehicle Accessibility (Non-Interoperable Rail System) Regulations 2020. On board audio and visual information will be better than existing including real time information. In addition to wheelchair spaces, trains will have multi-use areas which will accommodate pushchairs and bicycles, an improvement on the existing train design. The project will contribute towards fostering good relationships by increasing frequency, and therefore improving connectivity between different parts of the network.

- 4.7 An Equality Impact Assessment has been undertaken and no significant issues were identified. This will be kept under review as more design detail emerges.

### **Benefits (and Value)**

- 4.8 The purpose of the DLR Rolling Stock Replacement Programme is to replace life expired rolling stock and to continue to support growth around the network. To do this DLR needs to continue to run a highly reliable service and must be able to increase capacity step-by-step across the network.

### **Delivery of Preferred Option**

- 4.9 TfL's Surface Directorate is sponsoring the programme. It is being delivered through the Major Projects Directorate.
- 4.10 There are three main design and construction packages, all of which will be outsourced:
- (a) trains – design and manufacture of 43 new trains has been competitively tendered as a single package;
  - (b) depot expansion – a Managed Package Solution (MPS) procurement strategy will be employed for the depot works. A series of sequential contracts will be let for discrete geographically based work packages. Packages will be let on either a build only or design and build basis depending on the nature of the works; and
  - (c) signalling – design and implementation activities will be secured via a call off contract from the existing DLR signalling supply agreement. Delivery of on train signalling equipment and support for the train manufacturer will be delivered through a nominated supply agreement.
- 4.11 In addition to the three contracts listed in paragraph 4.10 above there are other ancillary contracts including an electrical network upgrade, electrical resilience works, platform train interface works, secondary means of escape works (Blackwall station) and lineside communications.
- 4.12 In addition to the contract for the design and manufacture of new trains, DLR is procuring a Fleet Support Agreement (FSA) for the supply of spares and ongoing technical support for the trains.

## **5 Financial Implications**

- 5.1 TfL has made provision for the amount stated in the paper on Part 2 of the agenda in its 2018 Business Plan for the Programme. A further breakdown of this funding is set out in the paper on Part 2 of the agenda.
- 5.2 The Programme and Project Authority requested in this paper will cover all remaining Programme activities.

## 6 Procurement Process

- 6.1 Under the terms of the Manufacturing and Supply Agreement (MSA), the train manufacturer will be responsible for design, manufacturing, testing, delivery, provision of spares, and commissioning of the new trains. The MSA also provides for the train manufacturer to dispose of the existing B90/92 trains.
- 6.2 The MSA is a fixed price contract for a base order of 43 trains and includes an option for up to a further 34 trains plus related spares. The scope of the MSA also includes for the integration and commissioning of the on board train control computer supplied by Thales. Thales provides the existing DLR signalling system, and the updated on board computer will need to be installed on the new trains to ensure compatibility with the rest of the signalling system.
- 6.3 The FSA, starting at the end of the two year train warranty period, has a term of 35 years and will be for technical support services and spares supply services. Payment is based upon a fixed fee for core technical services plus variable fees for other services such as technical investigations and spares services. The DLR franchisee will be responsible for first line maintenance of the new trains.
- 6.4 In accordance with the requirements of EU procurement law, a Prior Information Notice (PIN) was published in the Official Journal of the European Union (OJEU) in April 2015. In response to the PIN, a Pre-Qualification Questionnaire (PQQ) was issued and a shortlist of four bidders was established.
- 6.5 A comprehensive technical specification, tender evaluation models and associated procurement documentation for the new rolling stock were completed to allow release of the ITN, in accordance with the Programme Procurement Strategy.
- 6.6 Evaluation criteria were based upon a whole life cost and contractual compliance approach to ensure TfL obtained the optimum value for money.
- 6.7 The basis for tender evaluation was the “Most Economically Advantageous Tender” which was defined in the Instructions to Bidders (ITB). The ITB stipulated minimum thresholds which had to be achieved at each stage in order to avoid the risk of disqualification. The evaluation process comprised the following stages:
  - (a) Stage 1 - General review and mandatory requirements;
  - (b) Stage 2 - Train works and technical compliance;
  - (c) Stage 3 - Project deliverability; and
  - (d) Stage 4 - Commercial criteria.
- 6.8 Stage 4 evaluated the total commercial score which is based on the weighted net present value score (reflecting whole life costs) and weighted contractual compliance score. The Most Economically Advantageous Tender is the bidder with the highest total score at Stage 4.
- 6.9 The stages 1 – 4 related activities were conducted in parallel but the evaluation was completed in sequential order. Any proposal that was rejected during a stage could not proceed to the subsequent stage. A more comprehensive summary of

the process is included in Appendix 2 and further details are set out in the paper on Part 2 of the agenda.

- 6.10 The upgrade of the existing DLR wayside signalling system will be carried out by Thales under direct contract with DLR. The contract will be let as a supplemental agreement to a parent DLR/Thales 1995 Enabling Contract for signalling upgrade works. The scope of the contract is essentially a software update.
- 6.11 Concept design for the depot was completed in 2018 by CH2M Hill who was appointed through the TfL Railway Engineering Services Framework, and surveys have been undertaken.
- 6.12 An overarching procurement strategy for the depot was approved in May 2018, which recommended dividing the depot works into discrete packages rather than letting a single contract. The depot works are packaged largely by programme and migration states so that areas of the depot are phased to facilitate continued depot operations. This should achieve better control and greater flexibility by minimising the impact of unanticipated change, although it will mean greater integration risk (in comparison to a single contract where this risk is largely transferred). This strategy enables an earlier start to some works, and allows works that are not dependent upon the successful rolling stock supplier to progress independently.

## **7 Assurance**

- 7.1 The project has been reviewed by TfL Project Assurance and IIPAG. Five recommendations were made which are being implemented by the team as detailed in the management response.

### **List of appendices to this paper:**

Appendix 1: Summary of Main Work Packages

Appendix 2: Summary of Tender Evaluation Process

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

### **List of background papers:**

IIPAG and TfL Project Assurance Reports

Management response to IIPAG and TfL Project Assurance Reports

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## **Appendix 1 - Summary of Main Work Packages**

A number of workstreams will be required within the DLR Rolling Stock Replacement Programme including:

### **i. Rolling Stock Manufacture and Supply**

The design will increase capacity, improve ride quality, enhance on-board customer experience, and provide increased reliability. Planning capacity of 792 passengers per train (at five passengers per metre squared) is specified. The trains will be of walk-through design and air conditioned. Target fleet reliability of 50,000km mean distance between service affecting failures is specified.

### **ii. Signalling**

Modification to the existing Thales Seltrac signalling system will be required to facilitate the replacement rolling stock. The rolling stock will be fitted with the latest version of the Thales TOP Vehicle On Board Controller offering several new driving modes enhancing reliability. The existing signalling system will be modified in order to facilitate this.

### **iii. Depot Capacity Enhancement**

A new maintenance shed will be provided at Beckton depot to accommodate fixed formation trains. Additional stabling roads will be required to accommodate the net increase from the base order of 43 trains. An upgrade to the existing substation is required to provide the additional traction power that is required.

Works to accommodate vehicles displaced from Poplar or required to accommodate long term growth are not included in the project scope but consideration has been given to opportunities to future proof the depot. All works are contained within land currently owned by TfL.

### **iv. Train to Control Centre Telecoms**

The scope of this work package is to facilitate on-train customer information, remote asset condition monitoring and CCTV functionality. Currently changes to journey information and information on connecting services information is relayed to the Passenger Service Agents by handheld radio. The upgraded system will permit the control centre to issue fleet wide messages automatically to be displayed on on-board customer information systems.

### **v. Power Supply**

An additional supply from the Distribution Network Operator will be required to facilitate the increased capacity at Beckton Substation. Resilience enhancements are likely to be required in the Bank/Limehouse area to ensure service reliability. This will be

confirmed following confirmation of the final train power requirements and service pattern.

**vi. Stations**

A secondary means of escape is required at Blackwall Station to ensure that emergency evacuation times are maintained. The platform-train interface (PTI) between the replacement trains and existing platforms will be assessed and modifications carried out if required. It is envisaged these modifications will be minimal as the train specification has been produced to minimise the PTI impact.



## **Appendix 2: Rolling Stock Tender Evaluation Stages Summary**

The evaluation methodology is carried out in accordance with the Instructions to Bidders (ITB). Bid evaluation comprises four stages (as summarised below) which are undertaken in parallel, but independent of each other, and closed in sequence.

### **Stage 1 – General Review and Mandatory Requirements**

- (i) Stage 1 of the evaluation comprises a general review of Bidders' Proposals for completeness and compliance with the submission requirements in the ITB.
- (ii) Proposals containing any non-compliances or material qualifications may at this stage, at DLR's discretion, be rejected or requested to be withdrawn dependant on the number and/or materiality of the qualifications made.
- (iii) The Bidder is required to comply with the specified procurement, commercial and train specification mandatory requirements.

DLR may, at its discretion, exclude a Bidder whose proposal does not comply with the ITB submission requirements or which does not meet the Mandatory Requirements and/or if the proposal contains material or numerous qualifications which are not acceptable to DLR.

### **Stage 2 – Train Works technical compliance evaluation**

- (i) Proposals which progress from Stage 1 are evaluated in Stage 2 where Bidders' technical proposals are evaluated for compliance with the Train Technical Specification.
- (ii) Bidders' train proposals are evaluated and scored against a number of sub-criteria and sub-criteria components. A weighted score is awarded against the Bidder's response to each sub-criteria component and these scores are then added together to provide sub-criteria scores which are also weighted. Total weighted scores at sub-criteria level are added together to provide an overall compliance score.
- (iii) Minimum threshold scores apply at sub-criteria component level, sub-criteria level and to the overall score.
- (iv) Bidders' proposals which do not achieve the required threshold scores may be excluded from progressing to Stage 3 at DLR's discretion.

### **Stage 3 – Project Deliverability**

- (i) Proposals which progress from Stage 2 are evaluated in Stage 3 where the Bidder's plans and strategies are assessed under the following 3 sections:
  - Part 1 – Approach
  - Part 2 – Evidence

- Project Programme
- (ii) Bidders' deliverability proposals for each of the above three sections are evaluated and scored against a number of sub-criteria and, for Part 1- Approach, sub-sub-criteria, to determine whether its plans and strategies provide confidence that they will support successful delivery of the contract requirements, essentially testing the capability of the Bidders to deliver the rolling stock to the required quality, cost and programme.
  - (iii) For Part-1 Approach, Bidders' proposals for each sub-criteria are evaluated against five sub-sub criteria (objectives, methodology, resource requirements, performance management and review and responsiveness). The weighted scores for these sub-sub-criteria are added together to determine the sub-criterion score and the weighted sub-criteria scores are then added together to provide an overall score for this section.
  - (iv) For Part 2 – Evidence and Programme, scores are awarded against Bidders' proposals to each of the sub-criteria. The weighted sub-criteria scores are then added together to determine the Bidder's overall score for the relevant section.
  - (v) Minimum threshold scores apply at sub-criteria level and to the overall score for each section.
  - (vi) Bidders' proposals which do not achieve the required threshold scores may be excluded from progressing to Stage 4 at DLR's discretion.

#### **Stage 4 – Commercial Criteria**

- (i) Proposals which progress from Stage 3 are evaluated in Stage 4 where the Total Commercial Score (TCS) of the Bidder is calculated.
- (ii) The TCS for a Bidder's proposal is calculated by combining a weighted contractual compliance score which evaluates a Bidder's proposed qualifications to the MSA and FSA and a weighted Net Present Value (NPV) score based on the Bidder's submitted Financial Evaluation Model.
- (iii) Minimum threshold scores apply at sub-criteria level for contractual compliance.
- (iv) Bidder's proposals which do not achieve the required threshold scores may be excluded from further consideration.
- (v) Bidders are ranked in descending order of their TCS score with the Bidder achieving the highest score being ranked first.
- (vi) TfL may undertake negotiations with one or more Bidders according to the order of ranking at Stage 4.

## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** London Underground Track Delivery Partner Contract

---

### **This paper will be considered in public**

#### **1 Summary**

- 1.1 This paper provides an update to the Committee on the process and timescales for awarding a Track Delivery Partner contract for the London Underground (LU) Track Programme.
- 1.2 A paper is included on Part 2 of the agenda, which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from the meeting.

#### **2 Recommendation**

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

#### **3 Track Delivery Partner Contract**

- 3.1 The Track Delivery Partner procurement is due to be awarded in February 2019 and will replace the current Track Partnership contract with Balfour Beatty, which expires in February 2019.
- 3.2 The procurement process is at an advanced stage. Further details relating to the proposed governance and approval process are included in the paper on Part 2 of the agenda.

#### **4 Track Programme Overview**

- 4.1 LU track assets include track drainage, depots and long timber bridges. Track consists of 1,047km of track, which is 83 per cent on passenger routes and 17 per cent in depots and sidings. The track renewals programme plays a vital role in supporting line upgrades and maintaining day-to-day service levels and safety to meet the demands of intense service patterns. Track defects can and do result in reduced service speeds or line closures.
- 4.2 The objective of the track programme is to deliver robust, reliable assets that allow services to run without failure or maintenance intervention. This supports the strategic objective in the Mayor's Transport Strategy of 'improving rail services and tackling overcrowding' and supports the improving public transport services measure on the TfL Scorecard.

- 4.3 Continued investment is required to offset degradation of asset condition. Some current track forms date back to the early 1900s. These are being replaced with modern high integrity, long life, low maintenance track forms with predictable failure modes. This will provide a more stable and reliable asset base, in line with the Track Strategy.
- 4.4 The ultimate goal for the asset strategy is to reach a state of ‘predict and prevent’ by ensuring that there is sufficiently high enough quality data to inform decision making and result in lower service failure.
- 4.5 The Track Delivery Partner Contract is procured for the renewals of the following asset types and scope for the first year of the contract is shown below:

<b>Intervention</b>	<b>2019/20 km</b>
Ballasted Track Renewal	6.24
Slab Track	0.12
Drainage	5.66
<b>Intervention</b>	<b>2019/20 no.</b>
Points and Crossings	23

**List of appendices:**

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

**List of background papers:**

LU Track Delivery Partner Contract papers to the Committee in February and October 2018

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## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** Northern Line Extension update

---

### **This paper will be considered in public**

#### **1 Summary**

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

#### **2 Recommendation**

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

#### **3 Background**

- 3.1 The NLE will provide a 3.2km twin tunnelled extension of the Charing Cross branch from Kennington to a terminus station at Battersea Power Station (BPS) via an intermediate station at Nine Elms.
- 3.2 There are over-site developments (OSDs) at both BPS and Nine Elms stations. The Battersea OSD is being developed by Battersea Power Station Development Company (BPSDC) and we are carrying out the OSD at Nine Elms.
- 3.3 This new piece of transport infrastructure is a catalyst for the regeneration of the Vauxhall Nine Elms Battersea Opportunity Area (VNEB OA).
- 3.4 The benefits of the NLE include:
  - (a) a significant reduction in public transport journey times and increased public transport accessibility in the VNEB OA;
  - (b) congestion relief on the existing Victoria line and the Northern line south of Kennington;
  - (c) congestion relief at Vauxhall station; and
  - (d) congestion relief on some national rail services.

- 3.5 The NLE supports wider regeneration benefits of 20,000 new homes and 25,000 new jobs.

## **4 Current Progress**

- 4.1 The contract for the civil engineering, tunnelling and fit out main works (tunnels and stations) for the NLE was signed between TfL and a joint venture of Ferrovial Agroman and Laing O'Rourke (FLO) on 4 September 2014.
- 4.2 Since then, good progress has been made at the four key worksites: Kennington Park, Kennington Green, Nine Elms and Battersea. Tunnelling of the whole route has been completed and the track has been laid from Nine Elms to Battersea in both tunnels. The two stations are taking shape and the two junctions that connect with the existing Northern line at Kennington have also been completed. A key milestone was achieved in early October 2018, when the first engineering train to run on the NLE entered the NLE tunnel via the new northbound step-plate junction.
- 4.3 Next year the project will transition into the stations fit out, systems installation and integration stages, followed by testing.
- 4.4 A summary of some of the key achievements in the last year, along with photographs, is provided in Appendix 1.

## **5 Programme**

- 5.1 The end of December 2020 target opening date is under review. This is due to the need to adapt the construction programme as the designs for both Battersea Power Station's OSD and the Tube station underneath it have evolved.

## **6 Assurance**

- 6.1 A TfL Project Assurance and Independent Investment Programme Advisory Group (IIPAG) Assurance Review of the Programme took place in August 2018. There were no critical issues identified. All the recommendations from the reports are being addressed, as detailed in the management response.

### **List of appendices to this report:**

Appendix 1: Key achievements in the last year

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

### **List of Background Papers:**

IIPAG and TfL Project Assurance Reports

Management response to IIPAG and TfL Project Assurance Reports

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## Appendix 1

Key Achievements in last year:

### 1. Kennington Step Plate Junction

The two Kennington Step plate junctions, connecting the NLE tunnels to the rest of the Northern line, were successfully installed over Christmas 2017. (Photo 1)



Photo 1: One of the new step plate junctions connecting the NLE tunnels to the rest of the Northern Line.

## 2. Battersea Power Station:

Work has started on the internal walls to form the rooms in the new station. Construction of the eastern and western service lift shafts and emergency stairs was completed in September 2018 (Photo 2) and the installation of the coffered ceiling in the station ticket hall is progressing well (Photo 3).



Photo 2: The installation of pre-cast concrete stairs from ticket hall to platform level has been completed.

Photo 3 (below): The architectural coffered ceiling in the station ticket hall.





### 3. Track

Track has now been installed in the tunnel sections from Nine Elms station to Battersea Power Station. (Photo 4).



Photo 4: Track has now been installed in the tunnel sections between the two new stations.

### 4. Kennington Green:

Basement excavation for the Kennington Green head-house has been completed, which has allowed the base slab to be cast and the secondary lining in the shaft to be completed (Photo 5). Excavation at Kennington Park head-house is ongoing (Photo 6).

Photo 5: The shaft is 17 metres in diameter and 25 metres deep. Its walls are waterproofed and lined with concrete.

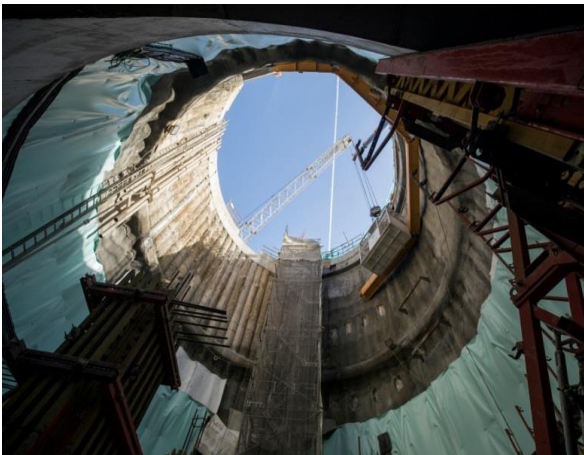


Photo 6: The temporary propping has been installed at Kennington Park head-house.

## 5. Kennington Station Cross Passages

The construction of four new cross passages connecting the platforms at Kennington station was successfully completed in September 2018. The new cross passages will improve capacity for customers wishing to interchange between the two branches of the Northern line which converge at Kennington (Photo 7).



Photo 7: One of the new cross passages

## 6. Nine Elms Station

The primary civils construction works were completed in September 2018 and over two-thirds of the platforms have been installed. Site set-up for the blockwork to create the internal walls to form the rooms in the new station has now commenced (Photo 8).



Photo 8: The installation of the pre-cast platform sections is progressing to programme.

A key milestone was achieved in early October when the first engineering train to run on the NLE entered the NLE tunnel via the new northbound step-plate junction (Photo 9). This success paves the way for future use of the new Kennington junction as a means of delivery for other materials to the NLE.



Photo 9: The first engineering train to run on the NLE

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## Programmes and Investment Committee



**Date:** 11 December 2018

**Item:** Crossrail Update

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### This paper will be considered in public

#### **1 Summary**

1.1 This paper provides an update on the status of the Crossrail Project.

#### **2 Recommendation**

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

#### **3 Crossrail update**

3.1 Health and safety performance remains good and within annual targets and Crossrail Limited are reviewing opportunities for improvements in particular to reduce the incidents of slips, trips and falls. Safety programmes will be developed to target the return-to-work period following Christmas and New Year holidays, though most sites will remain active over the holiday period.

3.2 Progress is being made on completing the stations, system testing and planning for completion and handover to the infrastructure managers (London Underground and Rail for London). As these plans progress, the operations and maintenance staff will move into the stations and the major contractors will be progressively demobilised.

3.3 Progress is also being made on completing the installation of rail systems in the central tunnels to facilitate a period of intensive underground testing of signalling systems, train and rail infrastructure. This should progressively improve the efficiency of testing with both Siemens and Bombardier working to fix any software issues within the signalling and on board Train Control Management Systems (TCMS). Following a re-examination of readiness, the period of intensive testing will commence from mid-January 2019.

3.4 The focus remains on finalising the remaining infrastructure and testing in order to get the Elizabeth line safely into passenger service at the earliest opportunity. The full opening of the railway, from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east, will commence as soon as possible after the central tunnels open.

#### **List of Appendices:**

None

#### **List of Background Papers:**

None

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## Programmes and Investment Committee



**Date:** 11 December 2018

**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 2018/19

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

<b>Wednesday 6 March 2019</b>		
Quarterly Programmes and Investment Report	Finance	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.
Use of Delegated Authority	General Counsel	Standing item
Crossrail 2	MD CR2	Authority request
Technology and Data Programme	MD CC&T	Annual approval
LU Major Stations Programme	MD LU	Authority request
LU Lifts & Escalators	MD LU	Annual approval
LU Signals and Control	MD LU	Annual approval
LU Rolling stock renewals	MD LU	Annual Approval
LU Track and Drainage	MD LU	Annual Approval
Crossrail update	MD LU	Regular update on progress

<b>TBC May 2019</b>		
Quarterly Programmes and Investment Report	Finance	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.
Use of Delegated Authority	General Counsel	Standing item
Deep Tube Programme	MD LU	

## Programmes and Investment Committee Forward Planner 2018/19

Bank Station – Step Free Access	MD LU	To note. Added to Forward Plan from Board Action List.
Crossrail update	MD LU	Regular update on progress

<b>TBC July 2019</b>		
Quarterly Programmes and Investment Report	Finance	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.
Use of Delegated Authority	General Counsel	Standing item
LU Stations (SFA, LU Crossrail)	MD LU	Annual Approval
World Class Capacity Programme	MD LU	Annual Approval
Power, Cooling & Energy	MD LU	Annual Approval
Crossrail update	MD LU	Regular update on progress

### Regular items:

- Quarterly Monitoring Report – to include:
  - high-level progress update against the 20 grouped Investment Programme and Major Project items;
  - and 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;
  - IIPAG and Project Assurance commentary;
  - use of delegated authority by Commissioner and CFO.
- 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).
- IIPAG Quarterly Reports Work Plan and Budget (current year).
- Crossrail Sponsor Board updates