

Supplementary Agenda

Meeting: Programmes and Investment Committee

Date: Wednesday 21 July 2021

Time: 10:00

Place: Microsoft Teams

Members

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

Dr Nina Skorupska CBE
Dr Lynn Sloman MBE
Ben Story

Government Special Representative

Becky Wood

As provided for under section 100B(4)(b) of the Local Government Act 1972, the Chair is of the opinion that this item should be considered as a matter of urgency. The reason for urgency is to allow for the latest information on programmes to be included.

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

Further Information

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

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

Howard Carter, General Counsel
Monday 19 July 2021

**Supplementary Agenda
Programmes and Investment Committee
Wednesday 21 July 2021**

6 Investment Programme Report - Quarter 1 2021/22 (Pages 1 - 52)

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

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

17 Exclusion of the Press and Public

The Committee is recommended to agree to exclude the press and public from the meeting, in accordance with paragraph 3 of Schedule 12A to the Local Government Act 1972 (as amended), in order to consider the following items of business.

Agenda Part 2

18 Investment Programme Report - Quarter 1 2021/22 (Pages 53 - 64)

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

Programmes and Investment Committee



Date: 21 July 2021

Item: Investment Programme Report – Quarter 1 2021/22

This paper will be considered in public

As provided for under section 100B(4)(b) of the Local Government Act 1972, the Chair is of the opinion that this item should be considered as a matter of urgency. The reason for urgency is to allow for the latest information on programmes to be included.

1 Summary

- 1.1 The Investment Programme Report describes the progress and performance in Quarter 1, 2021/22 of a range of projects that will deliver world-class transport services to London.
- 1.2 A paper is included on Part 2 of the agenda which contains exempt supplementary information. The information is exempt by virtue of paragraph 3 of Schedule 12A of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

2 Recommendation

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

List of appendices to this report:

Appendix 1: Investment Programme Report, Quarter 1 2021/22

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

List of Background Papers:

None

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Transport for London

Investment Programme Report

Quarter 1 2021/22



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Introduction

This report provides an update on a range of projects that will further enhance our world-class transport services in London. This report covers Periods 1 and 2 of 2021/22 (1 April 2021 – 29 May 2021).

For each major project or programme, the financial and milestone data represent 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 notable progress made after the end of the quarter.

Financial records of spend to date, authority and estimated final costs (EFC) represent the entire duration of each separate project or programme, except where stated in the date range. 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.

We also include cumulative EFC movements for savings and efficiencies that have been embedded since the 2021 budget, while protecting safety, services and reliability. Numbers in brackets represent an EFC decrease and numbers without brackets represent an EFC increase.

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 2021 budget, which are net of any third-party funding.

Our capital delivery teams have had an incredibly difficult year, but we have overcome the challenges of the pandemic as an organisation to keep London moving through it all, while improving our safety, health and environment performance.

Despite national restrictions being in place for the majority of Quarter 4 2020/21, our capital delivery activity continued under COVID-secure conditions. Some sites have made lateral flow tests available to the workforce on a voluntary basis. We also make these available for all staff, which is strongly encouraged, in line with Government guidance. We have also seen sites innovate their approach to delivery to not only improve COVID-19 security but also minimise task risks, including modular construction, task organisation and mobile protective screens.

Visits to construction sites were only made if it was absolutely essential to help minimise the possible spread of the virus. Site-based colleagues and workers were supported with regular communications and 'virtual' site visits to ensure people felt supported and core assurance deliverables continued.

There were 11 physical injuries across our Surface Project and Programme Directorate, Major Projects Directorate and London Underground Capital Delivery (formerly Renewals and Enhancements). These were all minor injuries but represent an increase of four compared with the same time last year, which in terms of trending was low at two injuries. During Periods 1 and 2 top injury causes were cuts and abrasions, bruising and sprains. There is no pattern to injury locations.

We have seen two Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) reportable injuries, one due to manual handling and the other due to a slip, trip or fall. Both were minor injuries, but those hurt were off work for more than seven days, triggering a RIDDOR report. These occurred in our London Underground Capital Delivery team.

There were four lost time injuries, two in London Underground Capital Delivery, as noted above, one in the Surface Project and Programme Directorate and one in the Major Projects Directorate.

The strategic milestones for 2021/22 – the key milestones listed in our 2021 Budget – are detailed on page 48.

Our investment programme is delivered by the following areas of the business and the report structure reflects this.

Major Projects

This directorate is responsible for our largest and most complex projects. It comprises line upgrades, such as the Piccadilly line upgrades and the Four Lines Modernisation (4LM), network extensions, major station upgrades, the Elizabeth line and Crossrail, which are covered on pages 8 to 21.

London Underground

This comprises stations, accessibility, track renewals, power, cooling and energy, rolling stock, and signalling and control, which are covered in pages 22 to 29.

Surface Transport

This comprises Healthy Streets, air quality, public transport and asset investment. These are covered in pages 30 to 43.

Other

This comprises technology and data and the TfL Growth Fund, which are covered in pages 44 to 47

The impact of the coronavirus pandemic

Following the temporary Safe Stop in March 2020, each project had a full review of working practices, in accordance with Public Health England guidelines. These were reviewed by construction managers before work recommenced.

There continues to be a knock-on effect from the pandemic in terms of workplace requirements and the availability of our employees and the supply chain, however the main priority continues to be ensuring safe working practices for all.

Following the introduction of Tier Four measures and the subsequent third national lockdown, we reinforced safety measures further to address growing concerns regarding the transmissibility of coronavirus. The teams continue to plan and prepare for the risk of an outbreak on a site, including introducing lateral flow testing, using guidance from the Construction Leadership Council and from Public Health England.

Performance at a glance

Major Projects

Elizabeth line

On-Network Station Improvement Programme

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2021/22	94	94	95	0	1

The On-Network Station Improvement programme continues to upgrade the surface stations on what will form the Elizabeth line route.

Our step-free work continues on the eastern and western sections of the route, and we have secured the appropriate level of handover paperwork from the contractors. Ealing Broadway, West Ealing and Acton Main Line were made step-free this spring. On the eastern section, we have received final submissions for review, which are in the process of being signed. There are challenges on the western section around both securing handover documentation from the contractor and the timeliness of reviews due to a lack of engineering resource. We have allocated additional resource in our project delivery team to resolve some of these issues.

The station refurbishment programme, delivered in partnership with our operator Mass Transit Railway Elizabeth line continues, with design work entering a more advanced stage for the new platform canopies proposed at Ealing Broadway and Hayes & Harlington stations. The most recent station to see the introduction of step free access was Ealing Broadway on 27 May. The refurbishment of Taplow station is due to complete this summer, as well as the new station building at Burnham, the construction of which started at the end of May. The new building and refurbishment work is due to complete early next year.

Rolling stock

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2024/25	988	1,149	1,006	0	18

Class 345 trains

Six Class 345 nine-car trains started timetabled trial running on the Elizabeth line central operating section, with four trains per hour on 10 May. Additional trains were added on 7 June, increasing the frequency to eight trains per hour and progressively increased to 12 trains per hour on 13 July.

Passenger services between Reading and Heathrow are being operated by nine-car Class 345 trains. Train software updates have improved reliability, but not up to the forecast level. The reliability was affected by non-software related door defects and other equipment hardware failures. The manufacturer, Alstom, is analysing the root-cause and instigating a fleet-wide component inspection regime.

The new Stage 4a timetable for the passenger service from Liverpool Street to Shenfield, with full-length trains was launched on 16 May as planned, using a seven-car Class 345 fleet, supplemented by a some 'legacy' Class 315 trains. On 26 May, the first three nine-car Class 345 trains entered service between Liverpool Street and Shenfield in the new timetable. The transition of the Liverpool Street to Shenfield service to a full nine-car Class 345 operation, with up to 22 trains, will start in autumn 2021, when they can run through the Central Operating Section for maintenance at Old Oak Common depot.

Crossrail

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	*	18.4	*	*	*

* Data has been redacted due to commercial sensitivity

Following a successful controlled start, focussed on maintenance activities, we began the timetabled trial running phase in May, which initially ran four trains per hour. At the beginning of June we increased to eight trains per hour and it was then increased to 12 trains per hour on 13 July. This ramp-up period is helping to increase confidence and experience of drivers and staff in the Romford Control Centre.

We are preparing trial operations, which involves exercises to make sure the railway is ready for passengers, with staff and volunteer exercises to make sure that all systems and procedures work effectively. Completion of trial operations will mark the final step before passenger services can start in the first half of 2022.

We are making good progress with the central station handover process, with five stations now under our responsibility as Infrastructure Manager, enabling our teams to fully prepare for Trial Operations. Custom House and Farringdon were the first two stations to be handed over to us. More recently, Tottenham Court Road, Woolwich and Liverpool Street stations were handed over to us on 5 May, 25 June and 3 July 2021 respectively.

Network Rail's major upgrade works to surface stations on the eastern and western sections of the railway continue to progress. The new ticket hall at Ealing Broadway station opened for customers on 27 May 2021, with new lifts enabling step-free journeys on TfL Rail, London Underground Central and District lines, and Great Western Railway.

Line upgrades

Four Lines Modernisation

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2023/24	5,028	5,412	5,428	33	399

*to be updated following completion of ongoing EFC/Schedule reviews

A review of the schedule and EFC is near completion, to verify the high-level estimate reported at the Programmes and Investment Committee (PIC) in May 2021. An update on the schedule and programme and EFC review is being presented as part of the 4LM update paper submitted. Collaborative discussions with our signalling contractor Thales are ongoing, with the aim to mutually agree a realistic schedule that can be maintained to the end of the programme.

The 4LM programme has made considerable progress, with two new sections successfully upgraded over a period of seven weeks. On 7 March, the new signalling system went live in signalling migration area 3, a significant and complex area between Monument, Euston Square and Stepney Green. A further milestone was achieved on 24 April when the signalling went live in migration area 4. This extended the section of new signalling on the Circle and District lines from Monument to Sloane Square, paving the way for frequencies to be increased and service reliability to be further improved as soon as the rest of the route has been similarly automated.

The next section of signalling, between Sloane Square, Paddington, Fulham Broadway and Barons Court, will go live later this year. This phase will involve upgrading the complex junction at Earl's Court. Once delivered, it will mean that the entire Circle line will have been upgraded to the new signalling system.

Following challenges linked to software development, installation and the impact of the pandemic, an extended programme and cost review are currently near completion. This will also accommodate the outputs and lessons learnt from delivering signalling migration areas 3 and 4 into revenue service.

We continue to make progress across the entire programme and have successfully completed a number of key works during closures, including system testing of future signalling migration areas 5 and 8. Additional key works have been completed during closures, including dynamic testing of the east end of the District line and the remaining migration areas that will, in future, complete the Circle line. On the Metropolitan line, significant work in the Neasden area has also advanced readiness for testing of the first section, extending future operation beyond Finchley Road.

The programme has two ongoing Formal Investigation Reviews into potential incidents identified during the launch of signalling migration area 3 and while system testing in migration area 5. No incidents actually occurred, but the Formal Investigation Reviews are expected to identify key learning points.

We have also successfully delivered and handed over Upminster Depot works to Upminster Fleet Depot Management under budget, which was a great achievement. The lessons learned are being shared with other projects such as the Piccadilly Line Upgrade and the Docklands Light Railway where similar works are planned to support the new trains.

Recent successes give us confidence in the near-term programme for signalling migration areas 5 to 7. Beyond that, however, further complexity exists. Extensive technical and risk analysis has been undertaken to ensure the joint programme team are in the best place to mitigate future threats.

DLR Rolling Stock and Systems Integration

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2024/25	100	864	858	(4)	758

The EFC has reduced as a result of savings made on the contract award of the Northern Sidings depot works and associated risk. An update on the Housing Infrastructure Funding schedule and programme and EFC is being presented as part of the DLR Rolling Stock PIC paper submission.

Our new DLR rolling stock programme will manufacture and supply 43 new trains – 33 to replace the expired B92 fleet and 10 to increase capacity. It will also include an expanded depot at Beckton to stable and service the new fleet and signalling modifications to the Thales automatic train operation system to work with the new trains and functionality. There will also be a telecoms system modification to provide enhanced customer information and traction power capacity works.

Rolling stock manufacturing is under way with Construcciones y Auxiliar de Ferrocarriles. On 30 April, the tenth train bodyshell was completed, with our first inspections successfully completed remotely in lieu of in person visits to the manufacturer. Signalling software development to accommodate the new trains commenced in September 2020, with the first software releases due in March 2022. Software development is progressing to programme.

The Beckton Depot northern sidings contract has been awarded and works have started onsite. The Beckton Depot site compound enabling works are also complete.

A grant agreement with the Government’s Housing Infrastructure Fund for 14 more trains and stabling was signed in December 2020, enabling up to an additional 12,000 homes to be built.

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

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2026/27	293	3,294	2,902	(8)	2,609

The confidence in the programme’s maturing risk management and mitigation process has led to a reduction to the EFC.

Phase one of our upgrade of the Piccadilly line will introduce 94 new generation, high-capacity, walk-through, air-conditioned trains and supporting infrastructure. These will replace some of the oldest trains on our network and will enable a peak frequency increase from 24 to 27 trains per hour.

In April 2021, the new passenger train seat moquette design was endorsed, which followed constructive feedback from our Independent Disability Advisory Group. We also completed the heating and ventilation air cooling tests on our saloon mock-up. Software and assurance testing of the new rolling stock systems and build was completed as planned. This is a key precursor to the start of train manufacture, which remains on target for summer 2021.

In support of our works to upgrade South Harrow sidings, conductor rail modifications have begun, and new driver walkways have now been installed. The signalling design has also been approved for modifications required at South Harrow Interlocking Machine Room. Work has started on site and the project is on target for the planned hand back of the first four new roads this December.

The Invitation to Tender for the High Voltage Power Design and Build Framework was issued on 26 April 2021. Power upgrades are required due to the increased number and frequency of trains that will run on the Piccadilly line once the fleet has been replaced.

As our new trains are longer and will run more frequently, we need to modify more than 200 existing legacy signalling assets. We started on site with these works in May with installation works starting at Gloucester Road.

The construction of the Siemens Goole facility, which started in March 2021, will be completed in October 2023. Works on site remain on target and Siemens has now awarded contracts for the construction of the factory, lighting systems, modular builds and enabling works. Construction at Goole will facilitate up to 50 per cent of the new trains being assembled overall. We are working with Siemens to formalise our involvement as a

partner within its Innovation Centre, which is also being constructed in Goole and due to open in 2022. This will support the realisation of innovation that is expected to drive further efficiencies into the Piccadilly line upgrade estimates, as well as estimates for future Deep Tube Upgrades.

Network extensions

Northern Line Extension

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2021/22	*	1,260	*	*	*

* Data has been redacted due to commercial sensitivity.

The Northern Line Extension (NLE) project is a twin-tunnelled extension from Kennington station to a new terminus at Battersea Power Station, via a new station at Nine Elms. Construction started in 2015 with the excavation of the sites for the two new stations. The main 3.2km bored tunnelling was completed in November 2017, with breakthrough at the new Kennington shafts. By February 2020, physical construction of the extension was broadly complete, with platforms, escalators and even the Tube roundels installed in the stations. The first Northern line train ran onto the extension during the 2020 Christmas period, marking the start of the extensive signal testing period. Resources across the NLE are now fully focused on finishing the station fit out works and commissioning key station operating systems such as CCTV, lifts and escalators.

During the Easter weekend, we tested the signals and opened the four new cross passages at Kennington station to the public.

At Battersea Power Station, premises works such as finishing installation of internal cladding, room fit out and station systems works throughout the station continue. The central and western sides of the Eastern Head House entrance have been finished, as have works on Prospect Way. Temporary platform edge barriers have also been removed in readiness for the start of station trial operations.

Landscaping works on Wandsworth Road and Pascal Street ramp works continue at Nine Elms.

The installation of ticketing and gateline equipment is complete at both Battersea Power Station and Nine Elms stations.

Following the successful commissioning of the NLE signalling system in June, the project transitioned from the signal testing period to train based trial operations by completing a series of trial passenger train runs at the beginning of July. We will be running Northern line test passenger trains through the new tunnels every weekend, to enable the railway and supporting systems to be run as close to an operational service as possible. Revenue service is still planned for autumn 2021.

Mayor Sadiq Khan and Deputy Mayor for Transport Heidi Alexander visited the Nine Elms station site in May 2021.

Silvertown Tunnel

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2024/25	70	180	175	(26)	105

All numbers shown are net. Financial data includes direct capital costs to us, other than the early development costs incurred by us, which have been reimbursed by the Public Private Partnership consortium. It also excludes construction costs being incurred by the concessionaire, as these will be funded through the availability payments once the tunnel is open.

The EFC has reduced due to User Charging scope transfer to Surface Project and Programme Directorate and Permanent and Temporary Land reductions. This is offset by an increase in risk for the Monitoring and Mitigation Strategy – Lot E Highways works.

The EFC is currently £1.6m over the delegated Programme and Project Authority (adjusted by the transfer of the User Charging authority to Surface Project and Programme Directorate in Quarter 1 2021/22). Risk mitigation and the identification of opportunities will be a key driver in reducing the overall project EFC.

Physical works continued on cabling and diversions to enable the power supply for the tunnel boring machine. Site works have started in both Greenwich and Silvertown, including where the tunnel boring machine launch chamber will be constructed and, following demolition of existing buildings and site clearance, the piling works are well under way. The launch chamber piling is now more than 80 per cent complete.

The project has served temporary possession notices and taken possession of land from several tenants to facilitate handover of 41 out of 63 sites to date to our contractor Riverlinx.

The contract for the design and manufacture of the tunnel boring machine continued to progress as planned, with delivery expected in early 2022. Fire resistance tests on the tunnel lining segments have been completed and the final assessment and report is being produced.

Contracts have been placed for transport and traffic, socio-economic and environmental monitoring, which are part of our Development Consent Order obligations.

Environmental monitoring continues, with additional monitoring planned to start later this year. This monitoring will support our wider air quality monitoring and is separate from that required under the Development Consent Order obligations.

The opening of the tunnel remains on track for 2025.

Barking Riverside Extension

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	269	329	332	4	63

The historic EFC increase is mainly driven by the main works contractor restaging for buried services and prolongation associated with the coronavirus pandemic, successfully agreed in a Supplementary Agreement during Quarter 4. In Quarter 1, EFC has marginally increased reflecting prolongation risk associated with Barking Riverside Limited station urban realm design and non-compliant station acoustic modelling, which the project team are currently seeking mitigations for.

The project was given an updated Programme and Project Authority in December 2020 of £328.5m and will come back to Programmes and Investment Committee in December 2021 once there is greater certainty over prolongation risk and third-party recoveries.

The project is delivering a new rail link that will unlock and support 10,800 new homes planned for the Barking Riverside development area. It will build a spur on the London Overground east of Barking to extend the Gospel Oak to Barking service to a new station at Barking Riverside, with a four-carriage service running at 15-minute intervals. This extension also includes modifications to the existing Network Rail infrastructure and new lines running on a viaduct of around 1.5km.

The viaduct had the final deck span, linking north and south viaduct structures over Choats Road, lifted into position at Easter 2021.

On the south viaduct, drainage works have been completed and installation of handrails has continued. On the north viaduct and ramp, final deck and slab pours have been completed. Waterproofing and finishing works are ongoing ahead of planned handover to Rail Systems team in July.

All the track slab has been delivered to site prior to its installation on the viaduct. The slab installation work on the viaduct began in mid-June 2021, following completion of the intermediate slab, which is 95 per cent installed.

At the new station, we have completed the main roof and platform canopy cladding and glazing. We are also progressing with the installation of mechanical and electrical equipment, including the lifts and permanent power supply to the station. We have also completed the station concourse paving and commenced installation of internal finishes. The large roundels and station name signage have also been mounted on the station.

There were four more successful weekend possessions to deliver further track, signalling, telecoms and overhead line works. In May, we completed Stage 13 of the 16 signalling commissioning stages. Preparations for Stages 14 and 15 signalling commissioning are well advanced, prior to their planned completion in summer 2021.

We have secured crucial Network Rail possessions, for the final signalling commissioning stages that were re-planned, following the impact of the coronavirus pandemic. Challenges remain with the last few proposed possessions and resolution with Network Rail is likely to be completed in autumn 2021.

Bank Station Upgrade

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	578	701	700	0	122

The EFC remains relatively stable since our budget was set. The EFC and the Programme and Project Authority reflect the full impacts of the coronavirus pandemic and related issues, as well as the revised timing of the forthcoming 17-week closure.

The project continues to collaborate with the main works contractor and reviews risk mitigations each period, along with opportunities to reduce the EFC.

We are boosting capacity at Bank station by 40 per cent. This includes creating a new Northern line tunnel, platform and circulation spaces, a new entrance on Cannon Street, the introduction of step-free access to the Northern line, additional interchange between the DLR platforms and two new moving walkways between the Central and Northern lines. This work is due for completion by the end of 2022.

Installation of new station system cabling is now progressing in both public and non-public facing areas. End devices, such as lighting and speakers, are beginning to be installed in back of house areas and inspections of completed works, such as the ventilation system, have begun. New station cladding finishes are now arriving on site, with the installation of some high-level cladding progressing well.

Installation of the majority of the new track bed and track have now been completed ahead of the planned closure, with only track sections at the north and south connection points left to be completed during the temporary closure of the Northern line. External stakeholder engagement and the communication strategy and plan in support of the blockade will start in summer and gather pace as we progress towards the start of the forthcoming closure.

Elephant & Castle

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2029/30	5	*	*	*	*

* Data has been redacted due to commercial sensitivity

The developer, Delancey, continues with its demolition of the existing Elephant & Castle shopping centre. Meanwhile, our negotiations with the developer continue to proceed in relation to the Development Agreement. Funding discussions with third parties, including GLA and London Borough of Southwark, continue, to safeguard the progress of the station box by the developer while moving our funding commitment to a future date. Securing these funds is essential to enable the development to proceed within its current timeline.

Current technical activity includes preparations for early enabling works contracts in order to take advantage of the forthcoming Bank closure.

High Speed 2

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2027/28	17	22	62	(16)	46

This project is fully reimbursable by High Speed Two (HS2) Limited and the scope of works is dependent on third party requirements. Programme and Project Authority is £40m lower than EFC as it is granted on an annual basis for the following year's spend. The EFC reduction is predominantly due to descope of the Euston substation works and removal of bus mitigation works due to the impact of the pandemic.

Enabling works are ramping up at Old Oak Common in readiness for piling and excavation works for the main station box, which are scheduled to start this summer. The pre-installation track survey was completed in June however the start of works is subject to the finalisation of the ground monitoring strategy, which is under review.

We continue to work with several stakeholders on an affordability study of HS2 in the Euston area. These stakeholders include HS2 Limited, Network Rail, the London Borough of Camden and Lendlease, under the umbrella of the newly formed Euston Partnership. HS2 Limited has presented a high-level proposal, with a detailed programme expected in July.

We continue to collaborate with HS2 Limited and its supply chain in reviewing and assuring their designs and works where there is a potential interface or impact on our assets or operations.

Railway Systems Enhancements (formerly World Class Capacity)

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2023/24	139	245	192	0	53

The EFC is £53m lower than the Programme and Project Authority, largely driven by the East Finchley auto reversing works descope in 2018/19, a power scope refinement and a budget reduction following emergency budget as a result of the impact of the pandemic last June and efficiencies.

Our programme to deliver service capacity increases on the Jubilee and Northern lines is focused on optimising train system improvements. Much of the work over the past two years has been on signalling and infrastructure interventions to enable a peak service increase to 31 trains per hour on the Morden branch of the Northern line.

We continue to make improvements to track conditions in the Kennington area, which will enable improved run times and the introduction of services on the Battersea branch, following the opening of the Northern Line Extension in autumn 2021.

At Kennington, we have successfully completed all works on the Northern line northbound track and are due to complete works on the southbound track in summer 2021. This work will improve the track condition and is on target to make all the necessary improvements in advance of the start of the Northern Line Extension revenue service in autumn 2021.

A second coupling transformer was delivered to Stockwell substation to support the Northern line power upgrade works, which are ongoing to provide system capacity for reliable services during planned or unplanned outages following recent service enhancements.

Work restarted in April to support 4LM works, after being paused following the pandemic, on modifications to Jubilee line rolling stock to enable an increase in entry and exit speeds at Neasden depot. This is to ensure compatibility with adjacent Metropolitan line services following the introduction of new signalling on the Circle, District, Hammersmith & City and Metropolitan lines and support future timetable uplift.

London Underground

Enhancements (formerly Stations)

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	387	532	538	0	151

The stations programme includes a wide range of projects, including large station capacity upgrades.

Paddington

At Paddington we continue to work with Great Western Developments on a co-funded scheme that will deliver substantial benefits to customers accessing the Bakerloo line. The development includes an enlarged ticket hall and step-free access to the Bakerloo line platforms. Piling works are now complete and work on the new lift shaft and casting of structures continue. Tunnelling works to create the new cross passage is due to commence in summer 2021 for four months. The project is due for completion in early summer 2022.

Tottenham Hale

The capacity upgrade project at Tottenham Hale continues. The remaining roof works were completed in May 2021 and the external glazing and cladding works were also completed in Quarter 1. The internal fitout is progressing well and is on track to bring the newly constructed assets into use by Quarter 3 2021/22.

Knightsbridge

Work to fit out the new Hooper's Court and Brompton Road entrance of Knightsbridge station has begun and manufacture of the three lifts to make the station step-free has been instructed.

South Kensington

Works started in Quarter 4 2020/21 on replacing five life-expired escalators at South Kensington station. The works mean Piccadilly line trains will not be stopping stop at the station until 2022, however the Circle and District line platforms remain open.

Colindale

At Colindale, we continue to work closely with our key stakeholder the London Borough of Barnet to progress an efficient and affordable scheme. A detailed design contract was awarded in September 2020 and final submission has now been received. The design is

under review by our engineers ahead of an anticipated acceptance in July 2021. The future decision point around transition into the construction phase is expected by Quarter 3 2021/22.

Stratford

A new south-western station entrance at Stratford station is forecast to open in 2023 and will provide new ticket gates and an improved public area. The project received approval to undertake and complete concept design. It is a collaborative venture with London Legacy Development Corporation and the London Borough of Newham who are funding the capital works. Procurement of concept design is under way and due to start in Quarter 2 2021/22.

West Ham

The new West Ham station entrance enabling works adjacent to the Jubilee line track are ongoing, preparing the area for piling, which is due to begin later in 2021.

Leyton

At Leyton, we continue to work closely with our key stakeholder the London Borough of Waltham Forest to progress an efficient and affordable scheme. A value engineering and construction study started in Quarter 1 to develop the scheme ahead of future investment decisions in Quarter 3.

Canary Wharf

As part of our In-Station Retail programme, works have substantially completed on a nine-unit development at Canary Wharf, with units made available for tenant fit out in May 2021 and all remaining works associated with the new gateline configuration due for completion in Quarter 2 2021/22.

Accessibility

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	100	120	120	0	20

We are making 12 stations accessible as part of the London Underground accessibility programme. We have delivered step-free access at eight stations since 2018 (Newbury Park, Buckhurst Hill, South Woodford, Mill Hill East, Cockfosters, Amersham, Debden and Ickenham), with the remaining four to be made step-free by the end of 2021. Ickenham is the most recent, becoming step-free on 23 June. Main works and lift installations continue at Osterley, Wimbledon Park, Harrow-on-the-Hill and Sudbury Hill.

Track renewals

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	93	402	402	0	309

Since April we have successfully delivered 0.5km of new ballasted track, 0.5km of drainage and 0.65km of new deep Tube track across the Central, District, Northern and Piccadilly lines. This aim of the works is to improve safety and reliability of the railway. We remain on target to deliver the year-end target of installing 8km of new track.

Rolling stock

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2026/27	235	705	1,049	0	814

Accessibility

We have begun the Rail Vehicle Accessibility Requirement project on the Bakerloo line fleet. The project is currently working through the design and early parts of manufacturing processes. A train is currently at Acton maintenance shed, having the first wheelchair bays installed. A second train, with new LED lighting throughout, has returned to service.

Fleet improvement programme

The Central line improvement programme is progressing with detailed design validation through the installation and testing of all prototype systems. We have achieved 95 per cent of the saloon design electrical installation on the second train. The last elements of the electrical installation and the remaining six cars of LED luminaires were completed in Quarter 1. The alternating current traction equipment installed on the first train continues to make good progress and with the first maintenance demonstration successfully held.

As part of the Jubilee line improvement programme, feasibility to reduce the risk of structural fatigue cracking in the carriage subfloor has begun, with capital investment authority to proceed into concept design and delivery, due to be requested in Quarter 3.

Train heavy overhauls (deep dive maintenance)

As well as day-to-day maintenance, our fleet also undergoes a more in depth MOT based on kilometres run. We have begun the first overhaul of the Metropolitan line S8 trains and built the first of 32 bogies. Works on the Victoria line are now complete with all trains now fully overhauled. Piccadilly line fleet overhaul remains on schedule with the seating and flooring continuing as planned and with support of Alstom.

Engineering vehicles

Our fleet of engineering vehicles are crucial to the safe operation of the railway and much needed refurbishments of these heavy-duty vehicles has been completed on flatbed wagons. One of these vehicles, the mechanised renewal vehicle, successfully undertook a 36-metre slab track renewal during a possession allowing all plant, tools and materials to be taken directly to site with a large reduction in manual handling and machine movements. Further enhancements and trials have been made during Quarter 1.

Renewals

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2024/25	134	285	341	0	207

The London Underground Renewals programme covers a range of assets across buildings and stations, civils, power, electricals and cooling to ensure safety compliance and continued reliability.

Communications equipment

Design work continues on the replacement of obsolete communications equipment including station management systems, local area networks, closed circuit television (CCTV), public address and alarm system, lift intercom system, visual information displays and ticket hall information displays, as well as passenger help point systems at Kings Cross station.

Design work continues on the stations on the Jubilee Line Extension for the replacement of station information management systems, public address and voice alarm system, as well as the passenger help point system. These works will ensure that all communication systems including CCTV are upgraded to the current standards.

Passenger to train interface works

One-person operation CCTV cameras are being installed on platforms at Waterloo and Bakerloo to address safety concerns and provide safer access to and from the trains. Design works have also commenced on the Northern line platforms across the network.

Passenger to train interface improvement works on the Bakerloo line at Oxford Circus have now been completed.

Civils

Embankment strengthening works between Grange Hill and Chigwell have commenced on site as scheduled.

Signalling upgrade

The first five-year tranche of the Incremental Signalling Upgrade programme is progressing well, with design starting on updating the Bakerloo line control system. Early contractor engagement is also taking place to address replacement of obsolete signalling sub systems on the Jubilee and Northern line signalling systems. The first upgrade for the Central line signalling system is also being planned.

Electrical - LED lighting

As part of the Mayor's Transport Strategy zero carbon target, we have completed the conversion of traditional fluorescent lights to low energy LED lighting at 19 stations as planned, improving efficiency and reducing ongoing maintenance costs. A new delivery programme for a further 20 stations to be completed during 2021/22 has begun.

Power and Cooling

4LM substation upgrades

As part of the 4LM programme, existing substations are being upgraded to accommodate the associated increase in power loads.

Sub vents

The substation ventilation construction works continue to progress following Safe Stops due to the pandemic. Shepherd's Bush and Earl's Court are undergoing final commissioning following a Safe Start and will be completed by Quarter 2 2021/22. Victoria and Notting Hill Gate are awaiting Safe Starts, which are due for completion in Quarter 3 2021/22. Further sites at Acton, Embankment and Bouverie Place are now in delivery following a comprehensive tender process.

Power

A contract has been awarded to replace the 22 life-expired uninterruptable power supply units feeding station signalling equipment addressing critical signalling risks to the railway.

Site works have commenced on the replacement of 16 traction isolation switches at Hainault Depot to address equipment non compliances and remove operational restrictions.

Site works have also commenced for the replacement of the high voltage switchboard at Greenford substation as scheduled.

The Central line signalling and control system life extension project has completed conceptual design and is progressing towards contract award.

Power control

We have started factory acceptance testing on the network-wide power control system replacement project to improve safety and reliability. The power control system comprises control centres linking to circuit breakers across the network which allow for train traction control. All electrical systems on the network have plants that are controllable from these locations. This important step will enable us to proceed with installation and commissioning towards the end of 2021. Unfortunately, the pandemic has impacted these works, and achievement of these activities remain dependent on lifting of the Government's current coronavirus restrictions.

London Underground Technology

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2024/25	76	95	205	0	129

Networks and connectivity

We are upgrading key components of London Underground's operationally critical Connect radio system, which provides communication links between trains, stations and control rooms. We have achieved a significant milestone by successfully completing a two-year programme of work to deliver wide-ranging upgrades to key radio hardware and software and are now working on a second phase to roll out new radio hardware base-stations across the London Underground network. This second phase will continue through financial year 2021/22 and is expected to be complete in mid-2023. As a result of this work, the Connect system will be able to function into the 2030s. To date, we have installed new hardware at 14 of the required 293 locations and installation is progressing well.

Following the completion of installation of public and operational Wi-Fi facilities at Canary Wharf station on the Elizabeth line, we have now completed Wi-Fi installation works at Bond Street station and preparing to complete the Wi-Fi project. The improved connectivity at these stations will improve our customers' experience on the network and support various operational back-office systems.

We have also completed the replacement of the video-wall within the London Underground Control Centre, ensuring another five to seven years of operability and maintenance support. The video-wall is used by our Control Centre to operate our stations on daily basis, support our staff and contribute to the management of events across London.

Asset management

To improve our approach to asset management and long-term investment planning, we are consolidating our Asset Management Information Systems into a single platform for London Underground and London Trams. In Quarter 4, we successfully completed the development of our new platform and are now in the process of migrating London Underground assets onto this new single platform. This work will continue through 2021/22 and is anticipated to complete in late 2022. The project is part of a pan-TfL initiative to streamline our approach to asset management, with Surface Transport and other modes all migrating to the same single asset management platform over the coming years.

Surface Transport

Healthy Streets

Forecast year range	Spend to date (£m)	Programme and Project Authority (£m)	Five-year expenditure forecast (£m)	Expenditure movement post plan (£m)
2020/21 – 2024/25	170	249	999	70

As reported at the May Programmes and Investment Committee meeting, on 19 April 2021 the Chair of the PIC, following consultation with members, granted additional Programme and Project Authority to support the delivery of the Healthy Streets programme. This includes spend from 2020/21 to 2022/23.

The Healthy Streets portfolio is currently forecasting reduced expenditure of £70m against the December 2020 TfL budget.

This reflects the 1 June funding settlement and the £100m funding agreed to continue with the delivery of Active Travel and Healthy Streets projects to 11 December 2021. Overall spend for the full year is estimated to be broadly in line with financial year 2020-21, subject to further funding negotiations.

Following confirmation of funding settlement, we are requesting an increase in Programme and Project Authority at this PIC meeting to deliver the £100m Active Travel and Healthy Streets project spend.

In March 2021, we largely concluded the rapid delivery of new temporary schemes under the Streetspace for London programme, in response to the challenges of the pandemic. Further Government funding was allocated to the programme in Quarter 1, with £100m to 11 December 2021 identified for supporting active travel.

We have now remobilised our longer-term Healthy Streets investment programme, while continuing with some temporary and experimental schemes on borough roads through the Government's Active Travel Fund.

A lot has changed since the programme was paused and we are now in a markedly different context. Our approach to Healthy Streets planning and delivery has adapted to reflect this with a review of some historic schemes, a new integrated pipeline of future schemes, and adoption of lessons learnt through the delivery of the Streetspace for London programme. Furthermore, we have reviewed the programme and its priorities to ensure it is aligned with Mayoral strategies and policies spanning the next three years to May 2024.

The continuing Healthy Streets programme will deliver positive changes for road danger in line with our Vision Zero action plan, walking, cycling and bus travel across London. It will accelerate progress towards mode shift, decarbonisation, economic recovery and tackling health inequalities. Healthy Streets will also be an indispensable complement to our other initiatives – such as Crossrail, the electrification of the bus fleet, and the Ultra Low Emission Zone (ULEZ) expansion – and help power London's wider recovery.

Old Street Roundabout

Construction work continues to progress on the highways, drainage and station roof strengthening elements on the approach roads to the junction and on the peninsula area. In addition, the new main station entrance substructure work continues to progress at pace with construction of the perimeter and internal walls ahead of the superstructure works commencing from August 2021.

Refurbishment of the existing stairs at the northwest entrance (Subway 4) to the station has suffered some delay following discovery of some uncharted cables, which have had to be traced, cut and removed from site. Plans are under way to see what mitigations measures can be taken to recover this delay. Following completion and reopening of the stairs, the adjacent ramp at the northwest entrance will be permanently closed, which will enable the new passenger lift works to start from August 2021. Excavation for the new goods lift pit and sump have begun in the peninsula area.

The other new station entrance at Cowper Street is progressing well and on track to be opened and brought into public use in August 2021. Installation of the last precast concrete sections for the roof were successfully lifted into position over a long weekend traffic closure in early May 2021. Installation of the glazing began in early June 2021. The opening of this station entrance will enable the permanent closure of the northeast entrance to the station (Subway 1) and enable the next traffic management phase for the project to commence.

Installation of the new mechanical and electrical and new fire safety systems works in the below surface shopping arcade area, commenced in April 2021 and is progressing well.

The scheme will substantially improve safety for pedestrians and cyclists at this major junction. Completion is scheduled for autumn 2022.

Cycleway 4

Works along Creek Road within the Royal Borough of Greenwich completed at the end of May 2021 and the project team are liaising with the borough to ensure their works on Creek Road Bridge are completed as soon as possible. The next section of Cycleway 4 proposed for delivery is the Evelyn Street section in Lewisham and the main scope is to install 2.8km of segregated cycle track. Construction is planned to begin at the end of July 2021 and to complete by the end of March 2022.

Cycleway 9

Work on the eastern arm of Kew Junction towards Chiswick Roundabout and on Kew Bridge towards the south have been completed and the signals commissioned. Work for the western arm of Kew Junction towards Brentford is continuing with the planning phase. Hammersmith Gyratory detailed design has commenced and is due to be completed in August 2021.

Safer Streets

We are working on more than 120 vital projects delivering measures to address historical collisions and reduce road danger on our roads to contribute to the Mayor's Vision Zero ambition to eliminate deaths and serious injuries from London's roads by 2041. Measures include new and upgraded crossing points, improved pedestrian and cycle facilities, speed limit reductions and innovative pedestrian crossing technology.

In 2021/22, design work is progressing well on the latest projects to lower the speed limit by 10mph on more than 140km of our roads. We have introduced 20mph limits across 13km of our roads within Westminster, as well as on the A13 in Tower Hamlets, the A23 London Road in Croydon, the A107 corridor in Hackney, the A10 – A503 corridors in Haringey and the A232 West Wickham town centre. We have also introduced 30mph limits on the A10 Great Cambridge Road in Haringey. We will engage with local stakeholders on the above projects from this summer. In addition, we will meet with key external stakeholders such as the Metropolitan Police Service, emergency services, 20s Plenty, London Cycling Campaign and boroughs.

We recently completed safety improvements on the 42nd Safer Junction at A503 Camden Road junction with Camden Street. We will continue to work with the London Borough of Camden to provide mitigation measures on their network as a result of the prohibited left turn from Camden Street onto Camden Road.

Detailed design work has started on York Road Roundabout Safer Junction scheme and A10 by Edmonton County school. Design work is progressing well on the new signal crossing installation over the north side of Battersea Bridge at the junction with Grosvenor Road, after a jogger was tragically killed. Phase one of the project, delivering a new crossing over the bridge and introducing a 20mph speed limit, is expected to be delivered by late autumn, subject to funding. We plan to consult on the second phase of the scheme, to introduce a new crossing point on the western arm of the junction, in early summer.

Responding to the coronavirus pandemic

We are continuing to work with the London boroughs to rapidly deliver a series of trial interventions implemented in response to the pandemic. All activity is being kept under review as appropriate. In addition to our programme, £20m has been allocated to borough schemes from the Department for Transport (DfT) Active Travel Fund Tranche 2, which is separate from any funding agreement from the DfT with regard to our other activity, £11m of which is to be spent in this final year of 2021/22.

On the TfL-led programme, Quarter 1 highlights include works completing on the extension of Cycleway 4 from Greenwich to Charlton, and on sections 1 and 3 of the improvements along the A23 between Oval and Streatham. As we recover from the pandemic, we are

also continuing to monitor the impacts of the Streetspace for London schemes on cycling and other modes, as well as engaging local communities and stakeholders, to inform which schemes could be retained or altered, as well as those that could be removed in due course.

Borough delivery continues at pace, with more than 10km of cycling routes under construction. The London Borough of Barking and Dagenham are making good progress on their cycle route between Barking town centre and Barking Riverside, due to be completed in the autumn. In May, Islington publicly launched its Cycleway between Finsbury Park and Highbury Fields (C38), which features north London's first Dutch-style roundabout. Greenwich has completed designs and public consultation on two further routes (Greenwich Park to Shooters Hill and Eltham to Greenwich Park) which will begin construction in early August. We are now working with London boroughs to explore making temporary schemes permanent.

The Active Travel Fund programme is funded for 2021/22, and delivery is continuing at a pace that reflects the balance of the public health imperative, and an increased emphasis on consultation and engagement.

We have successfully appealed the judgment in the judicial review challenge brought by two taxi groups, UTAG and LTDA, to challenge the Streetspace for London programme, the temporary traffic scheme in Bishopsgate (A10) and the issuing of our interim Streetspace for London guidance to boroughs. On 16 June, the Court of Appeal allowed our appeal and overturned the order to quash the A10 scheme order, the Streetspace for London programme and the interim guidance. Written reasons will follow and it will be open to the claimants to seek permission to appeal to the Supreme Court. The scheme remains in place and as with all temporary schemes introduced throughout the pandemic, we will continue to assess the benefits and impacts of the scheme on an ongoing basis.

Air quality

Forecast year range	Spend to date (£m)	Programme and Project Authority (£m)	Five-year expenditure forecast (£m)	Expenditure movement post plan (£m)
2020/21 - 2024/25	164	255	852	(248)

Air Quality investment Programme and Project Authority was increased at the December 2020 Programmes and Investment Committee. This includes all spend from 2020/21 to 2022/23.

The Air Quality portfolio reflects increased expenditure of £248m against the December 2020 TfL budget. This is mainly due to work to consider the feasibility of a Greater London Boundary Charging scheme and to prepare for the contract expiry of the current Road User Charging contracts in 2026 (-£250m). This is a high-level initial estimate and the costs will be refined as the feasibility work is completed.

ULEZ expansion

Since the central London ULEZ was introduced, we have already seen significant air quality improvements, including a reduction of roadside concentrations of nitrogen dioxide by more than 40 per cent. By toughening the Low Emission Zone (LEZ) standards and expanding the central London ULEZ, it is predicted that more than 100,000 fewer Londoners will be living with levels of air pollution above the legal limits in 2021 than would otherwise be the case. Improvements will continue in future years, both inside and outside the zone.

After the ULEZ is expanded to the North and South Circular Roads and tougher LEZ standards are introduced London-wide, 96 per cent of roads in outer London will comply with legal nitrogen dioxide limits by the end of 2021.

Progress on the ULEZ expansion schemes is on track. The installation of enforcement cameras has progressed well, with more than 600 installed to the end of May. Installation of foundation infrastructure for the boundary signs is nearing completion, with 12 of 14 boroughs completed and first signs installed in Lambeth. Planning for the next phase of signage installation is well under way, with the majority of sign and post installation planned for July through to September.

Build of the new Siemens camera data processing systems is complete and now progressing through testing cycles with the first successful test completed on the weekend of 14-15 May 2021. Migration of the back-office processing systems to the cloud by our supplier Centra is well under way, with three of the four tranches already migrated to the new cloud platform. A series of further testing phases is under way to ensure the new system is ready to be made live well in advance of the actual scheme go live in October.

Work continues on the marketing campaign to raise awareness of the ULEZ expansion and educate drivers on how and where the scheme will operate, encouraging them to check their vehicles and plan their options ahead of October. This campaign includes posters, radio adverts, press and online advertising, leaflets for residents living along the boundary, press activity and stakeholder engagement, and will run until the scheme launches.

The ULEZ expansion is scheduled to launch on 25 October 2021.

Vehicle scrappage and support schemes

We have been operating the scrappage schemes, which help drivers scrap their older, more polluting vehicles to meet required emissions standards. To date, the schemes have supported the scrapping of more than 9,650 vehicles, with more than £43.7m of grant payments issued.

The Van and Charity Minibus Scrappage Scheme supports small businesses with up to 50 employees and charities to replace older, more polluting vehicles that do not meet the LEZ and ULEZ emissions standards. It has provided grants of between £7,000-£9,500 per vehicle. This scrappage scheme has been extremely popular and, due to high demand and limited funds, the scheme was suspended for vans in August 2020. More than 1,700 payments were made and around 1,400 applications were held in a queue. We remain committed to making offers to as many queued applications as possible, subject to funding becoming available from expired offers, due to owners deciding not to scrap their vehicle following the original offer.

The ULEZ Car and Motorcycle Scrappage Scheme is a grant available to any London resident who receives certain means-tested or non-means-tested disability benefits. They can apply for a £1,000-£2,000 grant to scrap cars and motorcycles that do not meet the ULEZ emissions standards. Following increased popularity, we have secured a further £4m which allows the scheme to be extended further towards the ULEZ expansion go live date (25 October 2021). The scale of this extension will be subject to the number of new applications being received over the coming months.

Rapid charging

To support the growing number of zero-emission capable taxis and wider take-up of electric vehicles, we have invested £18m to build a network of electric vehicle rapid charging points. Despite delays caused by the pandemic, we achieved our original target of installing 300 rapid charging points by 31 December 2020. Two hub sites at Baynard House in the City of London and Glass Yard in Greenwich are being finalised and these should add a further 14 points in the summer.

Greener fleet

The core bus fleet meets or exceeds the Euro VI emission standard. The number of zero-emission buses entering the fleet continues to increase, with now more than 500 buses in service. The number of zero-emission buses is expected to grow to 800 by the end of March 2022. We are also phasing in 20 new hydrogen double-deck buses into service, supported by a refuelling station at Perivale bus garage. All buses operating in our Dial-a-

Ride fleet now comply with the Euro VI emission standard, which ensures they meet the requirements associated with the planned expansion of the ULEZ.

Asset investment

Forecast year range	Spend to date (£m)	Programme and Project Authority (£m)	Five-year expenditure forecast (£m)	Expenditure movement post plan (£m)
2020/21 - 2024/25	109	494	994	8

Asset Investment Programme and Project Authority was increased at the March 2021 Programmes & Investment Committee. This includes all spend from 2020/21 to 2022/23.

The reduction compared to the December 2020 TfL budget is due to £3m savings realised in 2022/21 including risk releases on the delivery/completion of the Ardleigh Green, and Vauxhall Bridge projects and Surface Asset Management Information Systems. This was offset by (£2m) additional spend by third party funded Signal Modernisation. This programme's forecast was reduced by £7m in 2021/22 to reflect a more realistic delivery programme in light of the pandemic.

The five-year forecast remains in-line with the December 2020 TfL budget which reflects the Long-Term Capital Plan moderate option. This option will manage and reduce the number of interim measures in place on major tunnels and structures with noticeable reductions over 10 years.

In 2021/22 this includes construction commencing on A40 Westway and appointment of a detailed design contractor at Rotherhithe Tunnel.

Work is under way on ensuring the safety and operability of our highest priority assets that need urgent renewals, including critical tunnels, such as Rotherhithe and Blackwall, and structures, such as the A40 Westway, Brent Cross, Croydon Flyover and Gallow's Corner.

In Quarter 1, we completed further feasibility work for five renewed bus driver rest rooms. This is in addition to the five completed at the end of 2020/21 and will enable us to deliver improved bus driver welfare with more capacity.

Design work is progressing to plan on the replacement of the bridge expansion joint scheme on the A40 Westway, with the works forecast to begin in late summer 2021. The remaining joints, parapets and other planned works will commence in 2022.

The detailed design for protective security measures at Westminster Bridge has now received consent from both local authorities and plans are progressing well with the works scheduled to begin on site in late 2021.

The major project to upgrade fire systems to the Rotherhithe Tunnel is progressing through the concept design phase as scheduled and this stage was completed on 30 June 2021. Advance critical works to install an over-height barrier and replace the approach

road lighting have commenced their design phases, these will ensure the continued safe operation of the tunnel in advance of the major renewal, which is scheduled to commence in late 2022.

Feasibility works are under way on the Blackwall Tunnel systems and Brent Cross structures. On the former, a linear heat detector, which is used to help determine the precise location of any fire within the tunnel, is being replaced ahead of the main refurbishment due to its importance, with the works forecast to take place this summer.

The pedestal casings and blast cleaning of Hammersmith Bridge has been completed, and discussions are ongoing regarding the next stage of works with the DfT and the owner of the bridge, London Borough of Hammersmith and Fulham. The letter from the Secretary of State dated 1 June 2021 requires a memorandum of understanding between the Government, London Borough of Hammersmith and Fulham and ourselves, to fund the reopening of the bridge – initially to pedestrians, cyclists and river traffic and, depending on the cost, to motorists.

Work is progressing at pace on the plans for the temporary pedestrian and cycle ferry at Hammersmith that will connect the communities either side of the river while the bridge is repaired. There has been extensive engagement with stakeholders and the local community with 18 meetings having taken place to help develop the plans. The relevant consent applications have been submitted and, subject to the statutory decision-making processes, the ferry could be operational from late summer.

Public transport

Forecast year range	Spend to date (£m)	Programme and Project Authority (£m)	Five-year expenditure forecast (£m)	Expenditure movement post plan (£m)
2020/21 - 2024/25	80	121	776	26

Public Transport Programme and Project Authority was increased at the March 2020 Programmes & Investment Committee. This includes all spend from 2020/21 to 2022/23.

The Public Transport portfolio reflects a decrease in gross expenditure of (+£26m) from the December 2020 TfL budget.

The five-year forecast lower is driven by the transfer of delivery for station upgrades externally (+£8.5m): Hackney Central, Imperial Wharf will be delivered by Arriva Rail Ltd, and Seven Sisters lift upgrade to Network Rail.

A number of key schemes have been delayed, Rail Devolution (+£7m) and on Royal Docks Stations (+£9m) while awaiting further confirmation to start. This is in addition to savings achieved across a number of programmes.

London Overground

Early design work has been completed on the Seven Sisters Access-for-All project, where the option selection report has been completed.

London Overground has completed the migration to the new asset management information system, Maximo, which is aligned with our corporate asset management approach. We have completed documentation, training and end-to-end user acceptance testing, and the old system has now been archived.

A variety of minor route-way infrastructure renewals have completed in the financial year to further improve resilience on the core route.

A further seven Class 710 trains will be delivered later in 2021. These will be used on the Barking Riverside Extension as operational spares and provide additional capacity to meet forecasted growth on the London Overground network.

Elizabeth line fleet

We are installing a safety system on the eastern and western Network Rail sections of the Elizabeth line on behalf of London Underground to guard against inadvertent incorrect side-opening of doors at stations. This will complement the automatic correct-side door control provided by Crossrail in the central section. The system uses new trackside equipment that verifies location so that the train knows the next station and position of the

platform. Installation has been in phases, with both the eastern section between Liverpool Street and Shenfield and the western section between Paddington and Heathrow and Reading, now complete. The Elizabeth line operator is now conducting functional testing with a train prior to bringing the system into use.

DLR

In Quarter 1, both construction and procurement activities for the renewal portfolio have ramped up. The team including our contractors continue to assess the impact of coronavirus and mitigations and continuous testing has allowed us to see minimal impact.

The Vehicle Control Centre borders signalling project was successfully completed following full commissioning and operational testing at both Beckton and Poplar Control Centres. This simplifies train service operation and reduces train control risk.

Depot Conductor Rail replacement works were completed, and the Poplar Direct Current High Voltage project has progressed to the final commissioning stage. Site surveys were undertaken, and design is currently under way for key high voltage projects to replace the East Route Ring Main Units and other vital DLR power substation equipment, such as VMX switchgear and HSNP DC circuit breakers.

Good progress has been made on the Poplar station lighting upgrade project, and 80 per cent of the Beckton Depot shore supply equipment successfully replaced and commissioned into service. Intrusive lighting and power surveys have been completed at several stations which will allow us to progress with technical documentation for tender.

The lift system upgrade project continued to make good progress with eight lifts completed. Following a successful tender process, a contract has been awarded for escalator replacement works at Custom House and London City Airport stations.

Re-railing works at Gallions Reach and the Canning Town 1,306 points were successfully replaced during the May Bank Holiday closure.

Work has started on repairing platform stairs and station surfaces with Bank station being the priority. Waterproofing works have been undertaken at Limehouse arches and at Woolwich Arsenal.

The B92 train bogie frames replacement project has made progress, with 60 new frames delivered. A new forklift truck was purchased to facilitate maintenance activities at Beckton Depot.

Procurement activity has continued at a good pace with key projects currently out to tender.

The GLA-funded Royal Docks stations programme concept designs now approved for Royal Victoria and Beckton Park. GLA put the programme on hold due to funding uncertainty pending a decision at its June board.

London Trams

The Tram Replacement Rolling Stock Programme will replace the life-expiring CR4000 fleet, which are experiencing declining reliability and have one of the lowest state of good

repair categorisations across our fleets. Within the last quarter, the programme has developed the initial Operational and Maintenance Concept with Tram Operations Limited. Work has started to complete surveys on the network to ensure the best understanding of the infrastructure constraints. A tram market study to ascertain the current tram market offerings has also commenced to inform the main procurement activity starting later this year.

The roll-out of correct side door enable technology on the Stadler Variobahn trams was completed and has been performing well. Survey works commenced for the upgrade to the wayside tram communication equipment necessary to enable this technology on the Bombardier CR4000 trams and the installation work is planned to start in Quarter 2.

Our renewals programme continues across six asset groups, including rolling stock, power, civils, systems and permanent way infrastructure. The Lower Addiscombe Crossing track renewal was completed as planned over Easter and the design work for the third phase of the Reeves Corner track renewal, planned for August 2021, is now complete. The first phase of the Traction Return Remedial Works, to improve resilience at the East Croydon substation, was also completed during Easter, with the second and final phase expected to be completed by the end of Quarter 2.

The installation phase for the additional CCTV cameras on the Stadler fleet (Stadler Equipment Overhaul) has progressed, following issues with the First-in-Class commissioning, and is due to complete by mid-July.

Santander Cycles

Work to modernise, electrify and expand Santander Cycles is continuing as planned. This initiative aims to broaden and increase Santander Cycles usage, drive revenue, ensure operating costs deliver value for money and adapt to the requirements of the latest applicable regulations. It will improve the customer offering with the introduction of 500 electric bikes (e-bikes), flexible fare models and enhanced app functionality. E-bikes were ordered in late May, and system development is ongoing for a summer 2022 launch. Options are being explored to expand the geographical footprint of Santander Cycles to develop a business case including a recommended priority list of areas that would benefit from expansion.

Woolwich Ferry Resilience and Renewals Programme

During the transition of Woolwich Ferry from third party to in-house operation, work has been completed on installing a new vessel belting system on the side of the ferries to help prevent wear when mooring to the pontoons. This was complemented by the installation of new fenders, which were installed over the Easter period in April 2021. There has also been a new Mooring system installed at both north and south pontoons.

Following on from this, optioneering and design work has progressed on various renewals to help support the reliability of the Woolwich Ferry. These include highway modification to the North and South Terminal approaches, upgrades to the link-spans and investigations into alternative berthing and fuelling systems.

Surface Technology

Forecast year range	Spend to date (£m)	Programme and Project Authority (£m)	Five-year expenditure forecast (£m)	Expenditure movement post plan (£m)
2020/21 - 2024/25	25	128	348	66

Surface Technology Programme and Project Authority was increased at the March 2021 Programmes & Investment Committee. This includes all spend for 2020/21 and 2021/22 and expected contracted spend for 2022/23 and 2024/25 required before March 2022.

The five-year forecast expenditure has reduced by £66m from the December 2020 budget. The majority of this movement is the embedding of a five per cent efficiency (£17m) across all the years of the portfolio and an increased over programming assumption (£30m). In addition is the transfer of budgets of Taxi and Private Hire projects to the Professional Services portfolios (£15m). The remainder of the reduction is a blend of minor cost savings and scope changes across a large number of projects.

Roads technology

We are leading the way in delivering innovative new road traffic management systems to make journeys by walking, cycling and bus, as well as essential emergency services and freight trips, as efficient as possible. Delivery of elements of the Surface Intelligent Transport Systems programme remains on track. The second release of our Common Operational View Incident Management System has now been deployed into live operation in our Network Management Control Centre and exited early life support in April 2021. This ground-breaking system introduces new data sources and map layers to enable the control centre to focus its response to incidents on our network around the Healthy Streets framework. The foundation for incident management in the system are four Ps of pedals, passengers, pedestrians and protection.

Compliance, enforcement and safety technology

We are delivering a suite of projects under the Compliance, Enforcement and Safety Technology programme, using technology to improve safety and security on our network. Projects include enforcement, and compliance operational system, which is upgrading the digital capability of our Compliance, Policing, Operations and Security directorate, ensuring our 600 on-street compliance officers and back-office support staff can enforce the safety and security of our network efficiently and effectively.

This area includes initiatives to improve staff safety using technology, including introducing body-worn video cameras for more front-line colleagues. Cameras have now been rolled out to 6,000 colleagues across 302 sites including London Underground stations, staffed bus stations, Victoria Coach Station, Woolwich Ferry, and to front-line officers within

compliance and policing on the street. These cameras have already been used to capture footage of incidents of aggressive behaviour towards front-line colleagues, helping our people feel safer. Working with our policing partners, we have now enabled evidence to be shared digitally with the British Transport Police and will shortly enable this with the Metropolitan Police Service. Digital evidence sharing is key to ensuring footage captured using body-worn video can support police investigations and will make it easier to bring those who commit crimes against our people to justice.

We are also assessing the possible introduction of body-worn cameras or other personal safety equipment, such as lone worker devices, to other frontline colleagues, as well as commencing work to improve reporting and case management of work-related violence and aggression.

Work is also continuing to deliver deployable enforcement cameras. Each year more than 4,000 people are killed or seriously injured in collisions on London's roads. Seventy-six per cent of collisions happen at junctions – many of which involve moving vehicles contravening road traffic rules. Driving in bus lanes or waiting in yellow box junctions also negatively impacts bus reliability. These cameras can be flexibly deployed at locations not covered by existing CCTV cameras, which will greatly improve enforcement coverage, reduce collisions and support bus reliability. During a trial, the junctions where these cameras were deployed have seen at least a 40 per cent improvement in compliance. The tender process to select a camera supplier is progressing well, with evaluation of tender responses received under way. We are on track to award a contract mid-July 2021, to enable cameras to be introduced from late 2021.

Public transport technology

We are maintaining and developing technology to improve operation of our public transport networks and enhance customer experience. This includes replacing the booking and scheduling system for Dial-a-Ride, which will enable us to book and deliver more trips with the same number of vehicles, better serving Londoners who rely on accessible travel. Procurement for this system is progressing well, with virtual site visits with potential suppliers concluded in May.

We are also replacing the iBus system, which is a back-office system that is vital to ensure buses continue to operate effectively in London. Replacing this critical system is a key priority, as it enables us to provide real-time information to customers, enable bus priority at more than 1,800 junctions and supports performance payments to bus operating companies. Refreshing it gives an opportunity to improve bus passenger experience, with targeted enhancements including providing real-time information when a bus cannot follow its normal route and linking virtually to traffic lights at more junctions to help buses travel more quickly. We have published the Contract Notice for the iBus2 replacement project on the Find a Tender Service and expect to shortlist suppliers to participate in dialogue later this year.

Other

Technology and data

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2022/23	144	320	322	()	178

Programme and Project Authority and EFC shown are for financial years 2019/20 to 2022/23 as per the Programme and Investment Committee Paper that was approved on 3 March 2021.

Values shown are for Technology and Data funded projects only and exclude Emergency Services Network, Public Cellular Network and Telecoms Commercialisation projects.

Net Other Telecoms spend is included from financial year 2021/22 as it was included within the latest PIC approval.

iBus2 spend is excluded from financial year 2021/22 onwards as it transferred to Surface Transport from 1 April 2021.

Payments

We have appointed KPMG and Consult Hyperion to support us in developing the business case for the New Reader project. The work includes reviewing the life-expectancy and associated risks with the current reader and a 'should cost' exercise to benchmark against the Rough Order of Magnitude price received from Cubic.

On 20 May, we introduced stronger customer authentication for the Oyster website, in time for the payments industry phasing-in new security measures for online payments from 1 June ahead of a mandatory implementation date now scheduled for March 2022. Stronger customer authentication means that we can support the card issuer requiring a second form of verification to authorise a transaction, such as a code sent by text message.

Digital Workplace

The sub-projects within the Evergreen programme closed at the end of Quarter 4, having successfully met their objectives of updating all obsolete PCs, moving all 32,700 users to Windows 10/Office 365, and migrating 44,323 e-mailboxes and archive data to Exchange Online. The legacy infrastructure is now in various stages of being de-commissioned, new desktop updates have moved to 'business as usual' operations, and a final Programme Closure Report is under way.

The consolidation of all legacy versions of Microsoft SharePoint sites onto SharePoint Online continues to progress ahead of schedule with a total of 1,020 of 1,225 sites now completed. This project provides a common, online data platform for all TfL SharePoint sites, giving improved accessibility, security and eliminating the cost and complexity of managing the obsolete infrastructure.

Hosting – data centre rationalisation and Cloud migration

We continue to transform our hosting platforms and have decommissioned three large data storage arrays after migrating 1.2 petabytes of data storage to our compute platforms. This has created one-off savings of more than £1.6m.

We have also started a two-year programme to replace components of our revenue-collecting Payments Hosting Platform, which are no longer economical to maintain. These components cover the network, compute, data storage, data backup, development systems refresh, operating systems, databases and supporting software.

Networks

We have now finalised contract preparations and have approval to enter into our Telecoms Commercialisation Project concession contract with the preferred tenderer. Contract signature is contingent on completion of some related activities with the Home Office, which we expect to conclude imminently.

We continue to deliver infrastructure to support the Home Office's national Emergency Service Network communications system. In tunnels, we have pulled 410km (97 per cent) of the leaky feeder cable, with 361km fixed (86 per cent, up five per cent) and tested 270km of the cable (64 per cent). We have also installed 399km of tunnels fibre (95 per cent, up 14 per cent). We have completed 89 per cent of the required station cabling works (up from 85 per cent) at the first 73 stations and started work at a further four stations. We have also extended the Jubilee line 4G pilot service to end March 2022, by which time the Telecoms Commercialisation Project concession is expected to take over this service.

Technical service operation

A 4G network interim solution for the Woolwich Ferry service is now in place and the longer-term strategic solution is being worked on.

Projects continue to improve the resiliency of business IT services and management of our software license requirements.

We have also commenced several projects to support the GLA's office moves with installation of required infrastructure and submitted a proposal to manage GLA's IT services.

Enterprise resource planning

Work continues to support the Procurement and Supply Chain improvement project through the implementation of the latest SAP Ariba technology. The project team is

finalising the competitive market tender to select an implementation partner in summer 2021.

We have also initiated the SAP Success Factors project, which will deliver new mobile based technology for the management of manager and employee performance and development appraisals and succession planning, aligned to the new Conversation Matters approach to people management. A supplier has been selected and configuration began in June for a planned go-live from September of the first iteration of the new digital solution.

Contact Centre operations

We are committed to maintaining the quality and efficiency of the Contact Centre services including the automating of manual contactless payment card refunds. In addition to other business critical contract tenders, Oyster outsourcing, Lost Property system replacement and Cycle Hire outsourcing, we have also begun focusing on our long-term outsourcing strategy where we will replace our outsourcing framework.

Data analytics

The Origin Destination Interchange Modernisation project, which shows our customers' journeys across the bus network, with inferred alighting and onward journeys, reached a key milestone in May deploying a new cloud-based solution. This solves some of the technical challenges that the old product had due to technical constraints of slow performing technology. The focus is now on historical data migration. This is in readiness for a new improved platform for Origin Destination Interchange users at the end of August.

Digital

We are integrating live busyness information into the new TfL Go app, powered by anonymised Wi-Fi data, to support customers as they return to the network. We have also started to build account and payments functionality into TfL Go to provide a single, joined-up plan, travel and pay experience.

Growth Fund

Forecast completion year	Spend to date (£m)	Programme and Project Authority (£m)	EFC (£m)	EFC movement post plan (£m)	Cost to Go (£m)
2029/30	0	284	284	(20)	251

As the Growth Fund schemes have developed, and costs and potential funding have become clearer, it has been possible to identify savings in required Growth Fund contributions.

The revised budget classifies all Growth Fund schemes as fully meeting the Mayoral objectives but 'contingent on additional funding'. This means that, although all Growth Fund projects have already secured a strong commitment and a significant degree of third-party funding for their delivery, a further commitment by Government or other third-party sources is needed to complete their funding packages.

Over the last quarter, the Growth Fund has carried out a review of the programme objectives considering the most recent funding agreement with Government and the emerging strategic priorities around economic recovery. The programme team are working to identify additional funding streams while continuing to support all urgent Growth Fund projects by providing case-making and programme-level support. We are working closely with the GLA, central Government and other partners to discuss further third-party funding for Growth Fund schemes.

2021/22 Strategic Milestone performance

Our 2021/22 strategic milestones for the projects or programmes covered in this report are listed below. The RAG status indicates delivery forecast against the current plan date in line with this key:

■ On time or early
 ■ 1-89 days late
 ■ 90+ days late

Commentary is provided on milestones that are forecast to be delivered 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.

Milestone description	Plan date	Actual/ forecast date	Status
Major Projects			
Four Lines Modernisation ■			
Implementation of Passenger Carrying Revenue Service between Monument and Sloane Square – SMA04	29 August 2021	26 April 2021	Complete ■
Implementation of Passenger Carrying Revenue Service between Sloane Square to Fulham Broadway, Barons Court, Kensington (Olympia) and Paddington (Circle) – SMA05.	20 February 2022	9 January 2022	■
DLR Rolling Stock and Systems Integration ■			
DLR Rolling Stock Replacement Programme - Rolling Stock - First Train of new fleet assembled in Spain in advance of Static and Dynamic testing	27 December 2021	28 October 2021	■
Piccadilly Line Upgrade programme ■			
New Passenger Trains - Commence T1 Assembly – Piccadilly Line Trains	7 December 2021	2 September 2021	■
Depots - South Harrow Sidings - BiU 4 Roads (enable timetable)	24 Mar 2022	23 December 2021	■

Network extensions			
Northern Line Extension ■			
NLE service operational between Battersea and Kennington	Autumn 2021	Autumn 2021	■
Milestone description	Plan date	Actual/ forecast date	Status
Barking Riverside Extension ■			
Complete Viaduct Construction (Civils to enable rail systems installation)	4 October 2021	16 July 2021	■
Major stations ■			
Bank Station Upgrade – Start of 17-week partial closure of the Northern Line to deliver new Bank Station platform, passenger concourse and associated facilities.	17 January 2022	17 January 2022	■
London Underground			
Stations renewals and enhancements ■			
Enhancements - LU to have developed a decarbonisation strategy.	30 June 2021	30 June 2020	■
Track - Install 8km of new track and 18 new sets of points across the LU network	31 March 2022	31 March 2022	■
Rolling Stock - Completion of the Victoria line train overhaul programme	26 June 2021	3 April 2021	Complete ■
Rolling Stock - Central Line Improvement Programme – First train into service	31 March 2022	11 February 2022	■
Renewals - 23 of 23 Escalators returned to passenger service	31 March 2022	31 March 2022	■
Renewals - One Person Operated (OPO) Cameras – 75 per cent of planned platforms Commissioned.	15 December 2021	12 August 2021	■
Renewals - 16 life expired Traction Isolation Switches replaced	15 December 2021	18 October 2021	■

Healthy Streets ■			
Cowper Street station entrance opened	27 October 2021	30 September 2021	■
Bus Priority Programme - 5km of new or improved bus lanes (TLRN and Borough)	31 March 2022	31 March 2022	■
Air quality ■			
RUC Relet 2026 - Greater London Boundary Charge feasibility study completed and signed off by TfL Commissioner.	30 September 2021	30 September 2021	■
ULEX Expansion - Go Live – Date in Public Domain	25 October 2021	25 October 2021	■
Asset Investment ■			
MARP A40 Westway – WP1 Commencement of Construction on site	9 November 2021	18 November 2021	■

There is currently a minor delay to the date as the updated roller shutter joint design parameters add approximately four-six weeks to the programme. Negotiations to the target cost and programme took longer than anticipated. The decision to adopt a single shift approach and for TfL to accept the transfer of COVID risk were agreed on 2 June 2021.

There may be a delay to the notice to proceed into July 21 which may have an impact on the RSJ and cover plate detailed design approval which may impact the fabrication timescale.

We are working with partners to minimise the impact of the delays by possibly fast tracking the design review/approval process and we are seeking to undertake these activities in parallel with the design assurance / design check process. We are also working with our partners to seek opportunities to bring contract stage 2 works activities into contract stage 1 to keep the momentum going.

MARP Rotherhithe Tunnel - Design and Build Contract Award Recommendation	17 December 2021	19 November 2021	■
Surface Technology ■			
SITS COV MIS - Release 2.0 Complete	9 May 2021	8 April 2021	Complete ■