

**Transport for London**

**Investment Programme Report**

**Quarter 3 2020/21**

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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 Q3 2020/21 (18 October 2020 – 9 January 2021).

For each major project or programme, the financial and milestone data represents the position at the end of the quarter, and we include commentary for key achievements and progress made. The report also contains, as far as possible, updates on 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 2020 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 2020 budget, which are net of any third-party funding.

During Q3, we have carried out 3.6 million hours of work across Major projects, Surface projects and programmes, London Underground renewals and enhancements and Crossrail directorates. During this time, there were 34 injuries, with 21 in London Underground renewals and enhancements, 11 in Major projects and one in Surface projects and programmes.

Every injury is subject to a local investigation to establish root cause(s) and put in place mitigations to help prevent re-occurrence. Where identified, lessons from local investigations are shared across capital delivery and, where appropriate, across the wider industry. Sharing is either via Safety, Health and Environment bulletins, our newly instigated capital lessons learnt process or a bespoke communication event.

In Q3, our top three causes of injury causes are slips, trips and falls (six), falling objects (four) and non-compliance with safety, health and environment rules (three). For the full report please see here: [Q3 Safety, Sustainability and Human Resources panel](#).

The strategic milestones for the second half of 2020/21 – the key milestones listed in the 2020 budget – are detailed on page 35.

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

### **Major projects**

This is responsible for our largest and most complex projects. It comprises line upgrades, such as the Piccadilly line upgrades and the Four Lines Modernisation, network extensions, major station upgrades, the Elizabeth line and Crossrail, which are covered on pages 5 to 14.

### **London Underground**

This comprises stations, accessibility, track renewals, power, cooling and energy, rolling stock, and signalling and control, which are covered in pages 15 to 19.

### **Surface transport**

This comprises Healthy Streets, air quality, public transport and asset investment. These are covered in pages 20 to 30.

### **Other**

This comprises technology and data and TfL Growth Fund which are covered in pages 31 to 33.

### **The impact of the coronavirus pandemic**

Following the temporary Safe Stop last year, 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 coronavirus 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.

Since the introduction of Tier 4 measures and the subsequent third national lockdown, we have reinforced safety measures further to address growing concerns regarding the transmissibility of COVID-19. The teams continue to plan and prepare for the risk of an outbreak on a site, including introducing limited flow testing using guidance from the Construction Leadership Council and from Public Health England.

# Performance at a glance

## Major projects

### 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                  | 4,978              | 5,412                                | 5,398    | 3                           | 419             |

A zero-based review of the programme and EFC is underway, underpinned by a resetting of the commercial environment and thereby realignment to a more collaborative team-based approach. The outcome will also help in our coronavirus pandemic recovery plans. The programme and EFC review are planned to be completed in Q1 2021/22 the output of which will be reported at the May 2021 Programmes and Investment Committee meeting.

The programme continues to make good progress, successfully completing a number of key closure-based works and undertaking system testing of four future signalling migration areas.

We held a successful operational proving weekend at the beginning of January ahead of the next section of new signalling to go live in spring 2021. The operational proving weekend enabled our operational staff, including line controllers, service managers, train operators and asset maintenance teams to get hands-on experience of operating the new automatic signalling system in this complex area.

The weekend also enabled a trial timetabled service of six trains per hour to be operated and for some operational scenarios such as closing platforms and reversing trains to be trialled.

Following operational proving, the performance data is being analysed with the outputs fed into the final software, operational and maintenance assurance plans in preparation for go live in March.

Further key closure-based works have also been completed, including dynamic testing of the east end of the district line and remaining migration areas which 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.

## 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                  | 135                | 245                                  | 192      | 0                           | 57              |

The EFC is £53m lower than Programme and Project Authority driven by additional Jubilee and Northern line trains being taken out of scope and scope transfer for High Voltage works at Stockwell station.

The Kennington speed uplift team has successfully completed four consecutive 52-hour weekend possessions in the Kennington area, which supports the Northern Line Extension programme. This work improves the track condition and is on plan to make all the necessary improvements in advance of the extension opening for revenue service.

The Northern line power team has successfully decommissioned and replaced a large and old coupling transformer at Stockwell substation, a significant logistical challenge due to the residential location of the site and the size of the transformer. The Northern line rolling stock team has completed the first phase of train management software testing with Alstom. This is part of the testing plans for the Northern Line Extension opening.

The Jubilee line optimisation signalling and rolling stock works were paused following a strategic business decision due to the funding pressures and reduced passenger demand brought on by the coronavirus pandemic. This work, if approved, would deliver the benefits to increase capacity across the Jubilee line by up to two trains per hour. There will be a review in 2022/23 to assess if it can go ahead.

## 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                  | 76                 | 864                                  | 858      | (5)                         | 782             |

The EFC has reduced as a result of savings made on the award of the contract for the Beckton Depot northern sidings works and mitigation of associated risks.

This programme is to manufacture and supply 43 new DLR trains, 33 to replace the life expired B92 fleet and 10 to increase capacity. It will also include an expanded depot to stable and service the new fleet and signalling modifications to the Thales Automatic Train Operation system to support the new trains and functionality. There will also be telecoms system modifications to provide enhanced customer facing information and traction power capacity works. To improve safety, there will be station improvements for evacuation and platform train interface at selected sites

The final design phase has been completed and manufacturing has now commenced with Construcciones y Auxiliar de Ferrocarriles. The final design for the Thales signalling has been accepted by the project team.

The Beckton Depot enabling package has been awarded and tender evaluation has been completed for the Beckton Depot northern sidings works and approval given to award this contract. Works to bring in a new traction power supply by UKPN have commenced on site.

Authority to enter into the grant agreement for the Housing Infrastructure Fund works to delivery 14 additional trains and stabling capacity was approved in December 2020, and the grant agreement has now been signed. There is a break clause in this agreement in July 2021, should TfL’s funding agreement make it not possible to proceed.

### 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                  | 241                | 3,294                                | 2,902    | (9)                         | 2,661           |

The EFC is £392m lower than Authority and has reduced by £9m post 2020 budget as the project progresses and efficiencies are implemented allowing reduction of programme level risk and uncertainty.

The design for the new Piccadilly line trains is progressing as planned. Close collaboration continues with Siemens, our train supplier, and we remain on target to complete the final design in spring. Siemens has also started mobilisation of their train assembly facilities in readiness for manufacture.

The design of the One-Person Operation CCTV progresses as planned. This is a safety critical system that provides the train operator with CCTV images of the platform to enable safe departure. The contractor (Panasonic) has now started surveys due to take place on all Piccadilly line stations throughout the year, which is a key input to the site-specific designs. This will be followed by design, installation and testing and commissioning, we expect the first of these trains to be serving customers from 2025.

We continue to collaborate closely with our partners as part of the Transport Infrastructure Efficiency Taskforce and [Transport Infrastructure Efficiency Strategy \(TIES\)](#), to deliver three demonstrator projects. These projects are delivering innovative solutions in support of the Piccadilly Line Upgrade programme and will drive down costs, while also improving safety and sustainability. The projects include a new platform cooling solution that will help manage the temperature on the platforms and scalable offsite-constructed equipment rooms, which are cheaper, more sustainable and safer to install. Design and site

investigation works have started, as well as procurement of key components, so we remain on track for proof of concept delivered, including site trials in late 2021.

## 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                  | *                  | *                                    | *        | *                           | *               |

\* Data has been redacted due to commercial sensitivity

The first passenger test trains ran successfully on the new extension on the 19 and 25 December 2020. The test train runs allowed testing of the new signalling system, including stabling at all platforms and bi-directional running within the Kennington loop. We also carried out dynamic testing of trains in restricted manual and full speed automatic train operation on all routes. The extension remains on track to be available for revenue service in autumn this year.

The successful high-voltage power installation to the switch rooms has allowed the commissioning of key systems, such as escalators, lifts and CCTV. Stations and shafts tunnel ventilation fans were commissioned, and a test run was completed at Kennington Park shaft in December 2020.

Going forward, we are focused on the work packages and resources required for supporting the start of trial operations planned for summer 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                  | 6                  | 180                                  | 199      | (2)                         | 193             |

Please note: All numbers shown as net. Financial data includes direct capital costs to TfL, other than the early development costs incurred by TfL which have been reimbursed by the PFI contractor. 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 reduction is predominantly due to an updated resource forecast, land savings from early site handover and a reduction in the forecast risk for micro tunnelling. The Riverlinx design is expected to continue to programme, as is the land access schedule with the main tunnel enabling works progressing to main tunnel works in Q4.

The contract for the design and manufacture of the tunnel boring machine (TBM) was placed on 4 December 2020. Contracts have been placed for transport and traffic, socio-economic and environmental monitoring which are part of our Development Consent Order obligations and environmental monitoring has started. This will enable us to carry out modelling to adequately plan and implement our strategies for mitigation prior to tunnel opening.

We have concluded the ground investigation and surveys to facilitate utilities mapping and have had productive engagement with the utility companies. Utility works have started on cabling and diversions to enable the power supply for the TBM. Site works have started in Greenwich and Silvertown including where the TBM launch chamber will be constructed, with demolition and clearance of existing buildings starting on time.

The permit to use date remains unchanged at 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                  | 226                | 329                                  | 331      | 3                           | 105             |

The programme was given an updated Programme and Project Authority in December 2020 of £328.5m and will come back to the Programmes and Investment Committee in June 2021.

All ramp and viaduct piling were completed in October and all pile caps by November 2020. The final pier walls, at Piers 13 and 14, where the north and south viaducts will meet, were poured in December 2020 and January 2021. The final deck span over Choats Road is scheduled to be lifted and installed during the Easter holidays in April 2021.

All concrete works on the south viaduct were also completed in December 2020, with works ongoing on the north viaduct to finish the ramp, install the last deck spans and pour the remaining deck slabs. Installation of the track slab are planned to start on the viaduct in March 2021.

At the new station, we have completed the main roof and platform canopy cladding and glazing and have commenced the installation of mechanical and electrical equipment.

On 3 January 2021, we completed the major signalling stage (stage nine of 16) that was cancelled at Easter 2020 due to the first wave of the coronavirus pandemic. It had not been possible to undertake this work any earlier because the entire rail systems plan needed to be reworked and new possession requirements, including for this extended closure, arranged with Network Rail and the operators.

## 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) |
|--------------------------|--------------------|--------------------------------------|----------|-----------------------------|-----------------|
| 2021/22                  | 560                | 701                                  | 701      | 0                           | 140             |

The main tunnelling excavation and associated civil works were completed in late January 2021. The project continues to progress well through the fitout phase. Framework for new cladding finishes and the new bespoke integrated service booms have been completed in many areas of the station which allows for the installation of cable management systems located within the new service boom structure. The installation of the new fire suppression system has progressed through the new Cannon Street entrance building along with the insulation of mechanical ventilation ducting and the installation of internal drainage systems.

Planning for the temporary closure of the Northern line Bank branch and some associated Northern line stations continues. This will allow the existing southbound Northern line to be connected into the new running tunnel and platform at Bank allowing the old running tunnel to be transformed into a new larger passenger concourse.

## 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                  | 4                  | *                                    | *        | *                           | *               |

\* Data has been redacted due to commercial sensitivity

Our negotiations with the developer have progressed and are now at the stage of detailed discussions around conditions of engagement. These discussions will be enshrined in a Development Agreement between the two parties.

The project is currently preparing for a presentation to the Programmes and Investment Committee in May on the key terms and conditions of the agreements needed for the scheme to progress. The matter of affordability for TfL remains outstanding and requires a decision prior to executing the Development Agreement and supplementary Section 106, currently planned for spring this year. The supplementary Section 106 is an agreement where TfL agrees to undertake certain works, and bring the new station entrance into use,

in this case fitting out the new station and providing new tunnels from the new station box to the existing Northern line platforms.

Surveys and detailed design will follow with prioritised enabling works delivered in 2021/22. Tunnelling works will start once the station box has been handed over by the developer in 2024. In parallel, the team continue to drive to identify cost reduction opportunities as well as logistical planning and other preparations.

The developer continues with its demolition of the existing Elephant & Castle centre.

## 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                  | 14                 | 22                                   | 63       | (16)                        | 48              |

Programme and Project Authority is £41m lower than EFC as it is granted on an annual basis for the following year's spend. The EFC reduction is predominantly due to a rescope of the Euston substation works and a reduction in bus replacement costs due to the reduced demand during the coronavirus pandemic.

This project is fully funded by HS2 Limited and the scope of works is dependent on third party requirements. HS2 Limited's construction activity has continued across all sites in London under COVID-secure conditions. This has included the continuation of site clearance and mobilisation at Euston including preparatory works for the new London Underground substation and ventilation building, and utilities diversions along Hampstead Road and across Euston Road. Enabling works for the interim taxi rank at Euston station commenced in February and further detailed design is still ongoing. Enabling works are ramping up at Old Oak Common in readiness for piling and excavation works for the main station box which is expected to start by April/May 2021, pending resolution of ground monitoring requirement issues.

TfL is working with the Department for Transport (DfT) to assess the preferred option from the Senior Responsible Owner Study especially with regards to our infrastructure, operations and passengers. This work also includes other key stakeholders, including HS2 Ltd, Network Rail, the London Borough of Camden and Lendlease under the umbrella of the newly formed Euston Partnership. Collectively we are working to refine early scheme designs, as well as input into the affordability workstream to ensure any investment delivers best value. A decision on the high-level proposal is currently anticipated in April following review through the Euston Partnership.

TfL has also restarted some activities on the Euston Healthy Streets project utilising funding provided by the London Borough of Camden. This workstream is taking a strategic view of the highways surrounding Euston to inform future aspirations in line with the

Mayor’s Healthy Streets principles. Current work includes developing a joint vision with stakeholders as well as identifying short-term improvements for pedestrians.

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

## Elizabeth line

### Liverpool Street

The first Liverpool Street (main line station) ‘blockade’ was successfully completed in December 2020 – with the next one planned for Easter. These works will provide platforms long enough to accommodate full-length trains operating into the mainline station from Shenfield.

### On-network stations 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                  | 93                 | 94                                   | 95       | 0                           | 2               |

The On-Network Station Improvement Programme continues to deliver upgrades at the surface stations on what will form the future Elizabeth line route.

On both the Great Eastern and Great Western projects work continues to secure the appropriate level of handover paperwork from the contractors involved – a problem that has been exacerbated by remote working and many of the contractors’ staff being furloughed during 2020. It is hoped that a return to more normal working in 2021 will enable this process to finally be completed.

The station refurbishment programme, delivered in partnership with our operator MTR, has continued with works recently completed at Hanwell and Langley stations. The Grade II listed building at Hanwell has had significant refurbishment including brickwork and stonework cleaning and restoration, new windows and doors and reopening of a waiting room on platform 2 that has been derelict for a number of years. At Langley the completed work has included a 50 per cent larger ticket hall, refurbishment of the customer toilets, new automatic ticket gates and significant improvements to the stations southern entrance making it far more welcoming.

## 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                  | 982                | 1,149                                | 1,006    | 0                           | 24              |

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

## Central operating section

System integrated dynamic testing (SIDT) was carried out during the quarter which was beneficial to the traffic managers and real time infrastructure managers who were deployed. A further period of SIDT commenced during the second week of January.

## Reading and Heathrow

Full Length Unit nine car Class 345 passenger trains were re-introduced to the Reading route on 22 December 2020 replacing the seven car Class 345 trains. This is a significant step forward using the latest software to improve the reliability of the trains and increasing the mileage run using the full-length units.

## Stratford to Shenfield

Seven-car Class 345 trains continue to operate on this service and will continue to do so until Stage 4a is introduced in the first half of 2021/22 when they will be replaced with nine-car Class 345 trains.

## 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

Good progress has continued across the project in line with our plan to enter trial running at the earliest opportunity in 2021 and open the Elizabeth line by the target of the first half of 2022.

Health and safety remain a top priority and overall performance is kept under constant scrutiny. Collaborative meetings to discuss the coronavirus pandemic are held regularly with senior leadership across Crossrail and TfL and continue to review project resilience and continuity plans.

All shafts and portals have now been handed over and all central section stations, including Bond Street, are certified to support trial running.

Dynamic Testing of the signalling and train systems has completed with mitigations in place and bug fixes applied to future software releases. This allowed for SIDT to start on 3 December 2020. SIDT provides a valuable opportunity to test the complex systems in operational-like scenarios and begin to understand the reliability and software performance of the railway.

A third construction blockade was undertaken over the festive period to complete residual works on the routeway. The blockades have helped to recover significant time lost as a result of the coronavirus pandemic.

The current focus of readiness activity to prepare for the opening of the Elizabeth line continues to be the review and acceptance of asset data, drawings and operational and maintenance manuals.

# London Underground

## 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                  | 184                | 535                                  | 1,131    | 0                           | 923             |

The station programme includes a wide range of projects, from large station capacity upgrades to smaller but high-volume asset resilience and civils works. The structure of the programme is currently under review with the aim of simplifying the portfolio of projects – an update will be presented at a future Programmes and Investment Committee.

### Paddington

At Paddington we are working with Great Western Developments on a co-funded scheme that will deliver substantial benefits to customers accessing the Bakerloo line. The development scheme provides an enlarged ticket hall and step free access to the Bakerloo line platforms. Work is now proceeding on the full demolition of the old ticket hall to make way for the new station and lift shaft construction. The detailed design was developed at the end of 2020 and work starts this spring on the shell and core works.

### Tottenham Hale

Tottenham Hale has made good progress and the foundations and steelwork of the final phase are now complete. Critical roofing works have been completed and glazing and cladding works are in progress and will be substantially complete by the end of March.

### Knightsbridge

The build contract for the fit out of the lower passageways of the new Hooper's Court and Brompton Road entrance was awarded in Q3 and the works are due to commence in early 2021.

### South Kensington

The enabling works to implement and safeguard planning permission for works on the station were completed in Q3. Meanwhile, works start in Q4 on replacement of the life expired escalators. This will involve non stopping of Piccadilly line trains until 2022, however, the Circle and District line platforms remain open.

## Colindale

A detailed design contract was awarded in September 2020 and is due to be completed during Q1 of 2021/22. The design is progressing well, and geotechnical investigation works have been completed in Q3, enabling completion of the revised concept design.

## Stratford

A new south western station entrance is forecast to open during 2023 and will provide new ticket gates and create an improved public area. The project received approval to undertake and complete concept design and is a collaborative venture with London Legacy Development Corporation and the London Borough of Newham who are funding the capital works.

## West Ham

Enabling works adjacent to the Jubilee line track are ongoing, preparing the area for piling which is due to commence in 2021.

## Station retail

As part of our in-station retail programme, works are nearing completion at Liverpool Street and Oxford Circus and were finished in North Greenwich station in December 2020. Works also continue on a nine-unit development at Canary Wharf which is on target for completion by the end of March 2021.

## Accessibility

| 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                  | 86                 | 176                                  | 175      | 0                           | 90              |

We are making 12 stations accessible as part of the Mayor's step-free access programme. We have delivered step-free access at six stations since 2018, with the remaining six to be delivered by the end of 2021, with main works largely complete and lift installations progressing at Debden, Osterley and Ickenham. At Wimbledon Park, Harrow-on-the-Hill and Sudbury Hill main works are progressing with the installation of lift towers, brick work and systems upgrades in advance of the lift installation.



## 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) |
|--------------------------|--------------------|--------------------------------------|----------|-----------------------------|-----------------|
| Annual                   | 48                 | 81                                   | 81       | 0                           | 33              |

The track programme made good progress during Q3, successfully achieving five key milestones. In November and December 2020, we completed the drainage works at Highgate Depot and renewed ballasted track in Ruislip depot.

We also reached a key milestone by completing 2,700 metres of track reconditioning works which will increase reliability.

We delivered two major blockades at Ealing Common Depot and Acton Town which includes the full renewal of 17 points and crossing units across two sites.

Looking to the next quarter, we remain on target to carry out six weekend possessions to renew a further 1.5km of track.

## Power, cooling and energy

| 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                  | 57                 | 90                                   | 88       | 0                           | 31              |

We continue to improve operational safety and are making good progress removing non-compliant legacy systems across several projects. We have commenced works on the Wood Lane control centre which are progressing well.

As part of the Mayor's zero carbon target we are converting traditional fluorescent lights to low energy LED lighting at 12 stations, improving efficiency and reducing ongoing maintenance costs.

We have completed detailed designs for the system-wide power control system replacement project to improve safety and reliability. This important step will enable us to proceed with the manufacture of hardware and software development. Unfortunately, the coronavirus pandemic has impacted works required for the planned factory acceptance testing leading to delay of the tier one strategic milestone. We are forecasting achievement of this activity by March in line with the Government's current coronavirus restrictions.

As part of the Four Lines Modernisation line upgrade works across the London Underground network, existing substations are being upgraded to accommodate the associated increase in power loads. The upgrades result in increased heat emissions within several substations, which, if left untreated, could have a detrimental effect to the operation of equipment and, in extreme cases, train service.

In April 2020, Shepherds Bush substation was significantly completed, with installation of all main construction works, before being impacted by the TfL Safe Stop of all active substation ventilation sites. A Safe Start at Earls Court substation was put in place in early August 2020, with Victoria substation, Notting Hill Gate and Shepherds Bush to follow. This package of work is due to be completed by the end of March. A tender for the final package of works has been undertaken with contract award forecast for early 2021 with a view to start on site in late March 2021, and to complete the package mid/late 2021.

## 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) |
|--------------------------|--------------------|--------------------------------------|----------|-----------------------------|-----------------|
| 2023/24                  | 253                | 525                                  | 972      | 0                           | 718             |

We have delivered structural repairs to the Bakerloo line fleet to ensure continued reliability and started Rail Vehicle Accessibility Requirement prototype testing on three cars out of the seven-car train set at the Acton works depot. The Central Line Improvement Programme is progressing, with detailed design validation through the installation and testing of all prototype systems. A successful test cycle of the train management system on the network has been achieved. Production enabling has commenced at Acton and the long lead materials orders have been placed.

The first Metropolitan line S8 stock train has been lifted into heavy overhaul and the first bogies built. The Victoria line fleet overhaul is continuing to plan and is now 75 per cent complete. The Piccadilly line fleet overhaul of seating and flooring work has continued as planned and the pneumatic control module overhaul has re-started with Alstom.

The mechanised renewals vehicle wagons have been fully refurbished and returned to Ruislip depot. These wagons are trains that are specifically designed to renew old track in the deep tube. Design of the ancillary equipment is progressing well, and fitment of the track renewal equipment will begin shortly with trials planned to start in the Spring.

Four pre-production engineering wagons manufactured by CRRC in China have reached the UK, these wagons will be tested off network before London Underground infrastructure testing begins. Once these wagons have been fully tested and approved, the remaining wagons will be built and shipped.

The Kirow cranes are now approved for use within Ruislip depot, supporting lifting and loading operations and are already adding benefit. They are due for open section operation outside of Ruislip depot in the spring. Early market engagement for replacement battery locomotives started before Christmas which will look to enhance the existing engineering fleet to ensure they remain operational while a replacement fleet is considered. Unfortunately, the response to this was minimal due to the pandemic.

A second round of market engagement was undertaken recently. This project will look to enhance the existing engineering fleet to ensure they remain operational while a replacement is considered.

The Acton train modification unit project (AC14) has recently achieved a number of significant milestones. The civil construction works have been completed and the mechanical and electrical fit-out has commenced which gathers pace throughout the remainder of the year. In late 2020 the LV switchboard detailed design was approved, and the installation of the panel will commence at the start of Q4. The works are on target for energisation in February 2021. Track tamping and installation of the green roof are progressing, and the project is targeting completion in the first half of 2021/22.

## Renewals

| 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                  | 93                 | 212                                  | 216      | 0                           | 123             |

Work continues to replace communications equipment across key stations, including King's Cross St Pancras and the Jubilee line extension stations.

We have installed and commissioned One-Person Operation CCTV cameras on platforms across Leytonstone, Stratford, West Ham and Holborn stations We have also prioritised works at Waterloo to address safety concerns and to provide safer access to and from the trains.

We also completed canopy refurbishment works at Wembley Park station.

# Surface transport

## Healthy Streets

| Forecast year range | Spend to date (£m) | Programme and Project Authority (£m) | Five-year gross expenditure (£m) | Movement against 2020 Budget (£m) |
|---------------------|--------------------|--------------------------------------|----------------------------------|-----------------------------------|
| 2020/21 - 2024/25   | 97                 | 221                                  | 1,089                            | 20                                |

The Healthy Streets portfolio is forecasting an increase in expenditure of £20m against the 2020 Budget. This reflects the £20m Active Travel Fund received from the DfT to continue delivering projects that support the Government's response to the coronavirus pandemic.

It should be noted that following the end of Q2 2020/21, a further £75m Programme and Project authority has been granted by Programmes and Investment Committee in November 2020 to deliver Healthy Streets and active travel programmes in the second half of 2020/21.

In the first half of 2020/21 a significant amount was delivered under the Streetspace for London programme in response to the coronavirus pandemic. This included over 60km of new or upgraded cycle infrastructure, more than 22,000 square metres of extra pedestrian space across 35 locations on the TfL Road Network with a further 180 schemes at town centres and transport hubs on borough roads, 320 School Streets, 88 Low Traffic Neighbourhoods delivered and 86km of bus lanes on TfL Road Network with operational hours extended to 24/7 operation delivered across London.

In the second half of the year, we have continued to deliver Healthy Streets and active travel programmes.

The majority of Healthy Streets schemes that were paused in March 2020, have now remobilised. Q3 highlights include:

- Publication of the Streatham Hill consultation report, a project to deliver new pedestrian crossings, segregate cycle lanes and urban realm improvements in a traffic-dominated town centre
- Start of construction in Peckham town centre, following a number of tragic pedestrian fatalities, to make the area safer for people walking

- A new segregated cycle lane has been built in Hackney to complete Cycleway 1. The two-way protected cycle lane is designed to encourage less confident or new cyclists to use the already popular Cycleway 1 route.
- Detailed work has restarted for Waterloo City Hub, along with progressing work on major schemes at Vauxhall, Lambeth Bridge and for a new Cycleway along Lea Bridge Road.

### **Old Street Roundabout**

Construction work continues to progress well on both the highway and station roof strengthening elements. The interim traffic switch was successfully completed in late October 2020, ahead of the final traffic switch, which was successfully completed over the weekend of 16-17 January 2021. This enables critical construction work for the new main station entrance, new goods and passenger lifts and the new public space to commence. The other new station entrance at Cowper Street is also progressing well and on track to be opened in summer 2021. Installation of the critical fire safety systems works in the sub-surface shopping arcade area will begin this spring. The scheme will substantially improve safety for people walking and cycling at this major junction. Completion is scheduled for Autumn 2022.

### **Cycleway 4**

Works along Creek Road within the Royal Borough of Greenwich restarted on 7 December 2020 and are progressing well. The section on Evelyn Street to the west is due to start construction in April 2021 and further east, trial cycling infrastructure is being progressed to help more people walk and cycle during the coronavirus pandemic.

### **Cycleway 9**

In West London, 2.4km of new temporary cycle track on Chiswick High Road opened in December as part of the Cycleway 9 route between Olympia and Brentford. Works to complete the Kew Bridge and Wellesley Road sections of Cycleway 9 restarted on 4 January 2021. Other sections of the route are progressing well and a safer cycling corridor between Olympia and Gunnersbury has been created.

### **Safer streets**

We are working on more than 100 vital projects delivering measures to address historical collision and reduce road danger on the TfL Road Network. Measures include new and upgraded crossing points, improved pedestrian and cycle facilities, speed limit reductions and innovative pedestrian crossing technology.

Forty schemes from the Safer Junctions programme are now complete. Construction works at Dalston Junction, which were safely paused in March 2020, have resumed and are expected to be completed by the end of the financial year.

Design of safety improvements at Camden Road / Camden Street is now complete. The London Borough of Camden have given approval for the construction works to commence following agreement of funding for mitigations on their road network which are expected to start in March 2021.

Detailed design work is nearing completion for A102 Homerton High Street and A10 Stoke Newington Road, between Amhurst Road and Shacklewell Lane, for delivery by the end of March. Footway works on Holloway Road will commence before the end of the financial year, with the Safer Junction upgrade works taking place in 2021/22.

## **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 coronavirus pandemic. All activity is being kept under review as appropriate. A new milestone target of 30km of new and improved temporary cycle facilities has been set for the second half of the financial year. In mid-January 16.8km had been completed with a further 9.8km in construction.

Q3 highlights include a temporary cycle route opening in Greenwich on the A206, taking cyclists safely across the Angerstein Roundabout. Further work started in January on the eastern section of Cycleway 4 heading towards Charlton and Woolwich. Another temporary route opened on Chiswick High Road in Hounslow, which now allows safer cycling for local trips along the high street and improves cycling connections in west London. TfL is working closely with the London Borough of Hammersmith and Fulham to progress improvements to temporary cycle facilities through the borough and around Hammersmith Gyratory, and a temporary cycle route along Mansell Street is being progressed to provide an essential link between existing cycle superhighways two (Whitechapel High Street) and three (Royal Mint Street / Tower Hill).

Having submitted the bid for Active Travel Fund Tranche 2 funding for London in August 2020 and having received confirmation in November 2020 of £20m having been made available, we are working with the boroughs to confirm delivery of the appropriate schemes. Funding is in place for rolling delivery of borough cycling projects and has been confirmed for those new Low Traffic Neighbourhoods that were contained within the bid in December 2020. Where new funding has been requested, or changes of funding allocation (for example to change or strengthen existing Low Traffic Neighbourhoods in response to feedback) this has been considered and final allocations were made in mid-January. DfT have confirmed that they still want to see rapid delivery but given the new emphasis on appropriate consultation – welcomed by TfL and boroughs – delivery is expected to continue into 2021/22 in some cases. Guidance on consultation and monitoring, including where any proposals for schemes to be made permanent are under consideration, is being issued by TfL.

The United Trade Action Group Limited and the Licensed Taxi Drivers' Association Limited issued a judicial review claim against TfL and the Mayor of London, challenging TfL's interim Streetspace for London guidance issued to boroughs and a temporary scheme in Bishopsgate made pursuant to the Streetspace for London Programme. In a judgement given on 20 January, the court quashed the Streetspace for London Programme, our current borough guidance and the traffic order providing for the Bishopsgate scheme. We are disappointed with the court's decision and are seeking to appeal the judgement. The court has put a stay in place which means our interim guidance and the order can remain in place pending any appeal.

No specific findings were made about the lawfulness of other borough Streetspace for London plans which can remain in place as boroughs consider appropriate. The judgement is about the decision-making process leading to the issuing of our interim

borough guidance and the implementation of the Bishopsgate scheme and does not prevent decisions on other schemes being taken going forward, which should be taken having regard to the judgement as appropriate.

We recognise the need for schemes such as our Bishopsgate corridor to work for the communities they serve and have worked hard to ensure that people across the capital, including those who use taxis, can continue to make the journeys they need. We also recognise the need for schemes to be delivered in a fair and consistent manner and have worked closely with boroughs to create clear guidance for implementing schemes.

## Air quality

| Forecast year range | Spend to date (£m) | Programme and Project Authority (£m) | Five-year gross expenditure (£m) | Movement against 2020 Budget (£m) |
|---------------------|--------------------|--------------------------------------|----------------------------------|-----------------------------------|
| 2020/21 - 2024/25   | 68                 | 255                                  | 607                              | 13                                |

The Air Quality portfolio is forecasting an increase in expenditure of £13m against the 2020 Budget, mainly due to acceleration for Bus Electrification, We are targeting 2030 to have a zero emission bus fleet, which is dependent on funding but would be delivered by enabling appropriate power supply at bus garages for overnight charging in the current forecast view.

The EFC reflects the latest forecast set at Period 10 2021/22 to 2024/25.

As per our funding agreement with the government for the first half of 2020/21, we swiftly delivered changes to the operational hours of the congestion charge, which allowed us to realise cost reductions due to working innovatively. Work to ensure the congestion charging, Low Emission Zone (LEZ) and Ultra Low Emission Zone (ULEZ) schemes continue to operate beyond 2026 is also included in this portfolio forecast.

### ULEZ expansion

The installation of enforcement cameras has progressed, with more than 700 site surveys completed and 329 cameras installed. The new Siemens camera data processing system is nearly complete. All boundary signage site surveys have been completed and the infrastructure for boundary signs has been installation in Southwark and Lambeth.

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

## **LEZ and Direct Vision Standard**

The LEZ, which covers most of Greater London, encourages the most polluting heavy diesel vehicles driving in the Capital to become cleaner by setting minimum standards for emissions. These standards are being tightened on 1 March 2021 for buses, coaches and lorries, in line with the requirements for the central London ULEZ.

Following on from the successful technical cutover of the core system on 30 November 2020, the post implementation period of additional system monitoring and validation was completed as planned on 14 December 2020. Final system testing is underway in preparation for Go-live on 1 March. The recruitment of operational staff was completed in December 2020 and training material baselined ahead of staff training starting on 28 January.

Our Direct Vision Standards Scheme (DVS) categorises heavy goods vehicles (HGVs) depending on the level of driver's direct vision from their cab. The DVS will require all HGVs more than 12 tonnes to hold a safety permit to enter or operate in Greater London from 1 March.

Improvements to the DVS Permit Application System were successfully deployed on 24 November as well as the technical deployment of the DVS Enforcement system on 15 December in preparation for the customer facing Operational Go Live on 1 March. The LEZ and DVS marketing campaign continued from November to January, with targeted letters having been sent to customers identified using the DVLA database as being subject to both schemes.

## **Vehicle scrappage and support schemes**

We have been operating the Mayor's £48 million scrappage schemes, which help drivers scrap their older, more polluting vehicles to meet required emissions standards. To date, the scheme has supported the scrapping of over 8,000 vehicles and over £37 million of grant payments issued.

We also continue to make grant payments to applicants of the Heavy Vehicle Scrappage Scheme, with 51 heavy vehicles scrapped to date, and three retrofitted to become compliant. While the Heavy Vehicle Scheme was only available for a short period due to high demand, we have recently secured an additional £344k of funding via underspend from the Greater London Authority's (GLA's) Good Growth Air Quality Fund, to enable a total of 156 heavy vehicles to be scrapped.

The ULEZ Car and Motorcycle Scrappage Scheme remains open to applicants. This will enable us to continue supporting those on low income and with disabilities, as a mitigation to the impact of the ULEZ expansion. The scheme has supported the scrapping of over 3,600 vehicles to date and has seen a significant rise in applications in recent months.

## **Rapid charging**

To support the growing number of zero emission capable taxis and wider take up of electric vehicles, we have invested £18 million to build a network of electric vehicle rapid charging points. Despite delays caused by the pandemic, we still achieved our original target of installing 300 rapid charging points by 31 December 2020 – with this figure met by 17 December. We now have 305 rapid charging points installed, including London's first



rapid charging hub at Stratford International, with work continuing on some additional sites as well as on two additional hubs at Baynard House in the City of London and Glass Yard in Greenwich.

### Greener fleet

Since the start of the year, the main bus network has been operating with Euro VI or cleaner buses. This has been helped by completion of up to 4,000 retrofits under the NOx Abatement retrofit programme. This is a major milestone for the bus fleet in tackling toxic air pollution in the capital and will see harmful NOx emissions from buses fall by an average of 90 per cent. A press release was issued on 14 January to mark this success. In addition to Euro VI, we continue to grow the number of zero-emission buses in the fleet; there are more than 400 all-electric buses in service and around 300 additional zero-emission buses expected to join the fleet by the end of this year, including 20 double deck hydrogen buses. Our Dial-a-Ride operation now has 242 Euro VI buses to help it comply with the expansion of the ULEZ, with the full fleet of 256 on track to be compliant by 31 March.

### Asset investment

| Forecast year range | Spend to date (£m) | Programme and Project Authority (£m) | Five-year gross expenditure (£m) | Movement against 2020 Budget (£m) |
|---------------------|--------------------|--------------------------------------|----------------------------------|-----------------------------------|
| 2020/21 - 2024/25   | 63                 | 302                                  | 995                              | 7                                 |

The portfolio has Programmes and Investment Committee approval until 2021/22, so is only part funded in this five-year window.

There is a planned £2m accelerated spend on third party funded traffic signal modernisation in 2021 (work carried out on behalf of Boroughs and developers). Also £1m additional activity in 2021 on carriageways, structures, traffic signals and bus infrastructure, which is likely to increase by year end to offset underspends in other portfolios. This is currently covered within approved authority.

There has been a £10m reduction in third party funded signal modernisation in 2022 to reflect a more realistic delivery programme and the accelerated activity in 2021.

The latest forecast is aligned to the 2020 Budget which reflects the Long-Term Capital Plan moderate option. This option will enable TfL to address high risk assets (in particular bridges and tunnels) and begin to address the large backlog of works. This will also see gradual improvements in the state of good repair, the most evident of which will be carriageway.

A prioritisation exercise will be required to focus on ensuring the safety and operability of our highest priority assets, including critical tunnels (Rotherhithe and Blackwall) and structures (A40 Westway, Brent Cross, Croydon Flyover and Gallow's Corner).

The Asset Capital Programme is on target by the end of the financial year to deliver modernisation of 81 traffic signal sites, 195 new lighting columns, six new bus driver facilities, 400 new bus shelters, renewal of 40 safety cameras and 200,000 square metres of carriageway resurfacing. Against these targets by the end of December there had been successful completion of 38 traffic signal sites, 90 new lighting columns, two new bus driver facilities, 245 new bus shelters, renewal of 26 safety cameras and 85,000 square metres of carriageway resurfacing, and five structures built.

Notable progress in Q3 included:

- The works at Vauxhall Bridge to replace the waterproofing and expansion joints to the deck were successfully completed at the end of November 2020
- The final works at Ardleigh Green Bridge were also completed over the Christmas period earlier than anticipated and without any challenges
- Design work is also progressing to plan on the bridge expansion joint scheme on the A40 Westway, with the works forecast to begin in summer 2021
- The designs for protective security measures programme on central London river bridges is also progressing well, with the concept design for the measures at Westminster Bridge complete and works scheduled to begin on site 2021/22
- The major project to upgrade fire systems to the Rotherhithe Tunnel is progressing through the concept design phase as scheduled
- Feasibility works have begun on the Blackwall Tunnel systems and Brent Cross structures.

## Public transport

| Forecast year range | Spend to date (£m) | Programme and Project Authority (£m) | Five-year gross expenditure (£m) | Movement against 2020 Budget (£m) |
|---------------------|--------------------|--------------------------------------|----------------------------------|-----------------------------------|
| 2020/21 - 2024/25   | 50                 | 121                                  | 762                              | (22)                              |

The Public Transport portfolio is forecasting a decrease in gross expenditure of £22m from the 2020 Budget.

The portfolio is strongly supporting the delivery of new infrastructure and housing in London as part of the Housing Infrastructure Fund schemes over the next five years. This

includes the commercial development for the Poplar Depot (+£20.1m) which has now been transferred to out of Public Transport to Commercial Development, to align with business delivery.

Expenditure on the City Greenwich Lewisham Rail PFI contract for the DLR Lewisham extension is related to passenger volumes, which have been higher than forecast in the 2020 Budget. This is offset by savings released on the new Routemaster buses refurbishment programme and an efficiency target applied to the portfolio which has further reduced planned expenditure.

We continue to develop plans for rail devolution, which, if agreement can be reached with central government, would bring the Great Northern Inners services from Moorgate to Hertford North/Welwyn Garden City/Stevenage into TfL's operational portfolio. The date of this transfer would depend on the position of DfT/HMT and the contractual status of the current operators of the services, but we remain keen. Indicatively, if we were able to make progress soon, we would transfer in 2023/24. This would increase our expenditure by £32m against the 2019 Business Plan.

## **London Overground**

Since signing the Grant Determination Agreement in August with the Ministry of Housing, Communities and Local Government and the GLA in August 2020 TfL has been working on the early design work of a number of projects on the London Overground network that contribute towards housing growth. The outcome of this design work will better inform the feasibility of these schemes and is expected to conclude in the Autumn of 2021.

Works have finished on site at White Hart Lane, West Hampstead and Crossrail stations, with close out of handover documentation ongoing. Additionally, early design work has started on Seven Sisters Access-for-All project, where the option selection report has been completed.

London Overground is also in the final stages of migrating to the new asset management information system, Maximo, which is aligned with our corporate asset management approach.

A variety of route way infrastructure renewals have resumed after the Safe Stop and are on programme for completion by the end of the financial year to further improve resilience on this critical section of London Overground infrastructure.

A further eight Class 710 trains will be delivered by spring 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 to prevent inadvertent incorrect-side opening of doors at stations. This will complement the automatic correct-side door control provided by Crossrail in the central section. This is particularly important with the Elizabeth line coming into service.

The system uses new track-side equipment to verify to the train the position of the platform at the next station. Installation is in phases with the eastern section (Shenfield to Liverpool

Street) already started and forecast to complete in March 2021. Installation on the western section (Paddington to Heathrow and Reading) starts in March 2021 and is forecast to complete in July 2021.

## **DLR**

In Q3, construction activity continued at pace for our renewal projects, with the DLR team working closely with our contractors to monitor the coronavirus control measures in place at our construction sites and ensure they are mitigating the spread of COVID-19. The Vehicle Control Centre borders project completed the installation of critical signalling hardware and software which was successfully commissioned at Beckton Control Centre. Following a period of testing to address operational issues arising, commissioning is also planned at Poplar Control Centre in Q4.

Following successful tenders, a principal contractor was appointed to replace switchgear for the East Route Ring Main Unit and Hawker Siddley Nuclear Power Direct Current power.

In Q3, we completed track works at South Quay and City Airport and commenced the first phase of baseplate replacement programme on the network. Designs and procurement of long lead items for future track work has also started.

The lift system upgrade project saw the first three lifts successfully commissioned into use.

Woolwich Arsenal Roof Repair was finished on time which saw two of the station buildings being fully stripped and a new waterproof membrane installed within three months. Drainage and repaving at a number of stations were also concluded this period.

The GLA-funded Royal Docks Stations Programme continued, with concept designs now ready for approval for Royal Victoria and Beckton Park. The programme is on track to complete concept design and enter the construction phase for the first two stations in 2021.

## **London Trams**

Work progresses on a Correct Side Door Enable technical solution for the fleet to mitigate the risk of tram doors opening on the wrong side of the platform. The next stage of this involves upgrading the wayside tram communication equipment and a contract is to be awarded in Q4 to deliver this.

Our renewals programme continues across seven asset groups, including fleet, power, civils, systems and permanent way infrastructure. Phase two of the Reeves Corner embedded track renewal was completed on time over October half-term, and the design has commenced for the Lower Addiscombe Crossing track renewal planned for April 2021. The Phipps Bridge Fencing works to improve security in an area subject to unauthorised access was successfully completed in December, along with the commissioning of the systems for the CR4000 Cab Cooling project and the Detailed Design for the additional CCTV cameras on the Stadler fleet (Stadler Equipment Overhaul).

## Santander

A programme of works has started to modernise the cycle hire system. The modernisation proposal will improve the customer offering through measures to ensure Santander Cycles benefits from the latest market functionality for bicycle sharing systems, including an upgraded back office solution with the ability to offer flexible fare models.

We have commenced delivery and have issued a contract to Cubic to start the upgrade of the back-office payment system. We are also developing exciting improvements to the Cycle Hire app.

## London River Services

The Woolwich Ferry maintenance and operation was brought in house to TfL on 31 December 2020. We will continue to engage with staff and unions as we work towards improving the organisational structure and service operation. Essential maintenance was carried out over the holiday period and has completed ready for when a two-vessel service is required to resume dependent on coronavirus travel advice.

## Surface technology

| Forecast year range | Spend to date (£m) | Programme and Project Authority (£m) | Five-year gross expenditure (£m) | Movement against 2020 Budget (£m) |
|---------------------|--------------------|--------------------------------------|----------------------------------|-----------------------------------|
| 2020/21 - 2024/25   | 12                 | 20                                   | 307                              | (5)                               |

Surface technology authority has recently been updated via Programmes and Investment Committee in Oct 2020 to authorise spend to 2020/21 only. A submission for 2021/22 and part of 2022/23 is being presented in March. The Programme and Project Authority is therefore below the five-year gross expenditure as the portfolio is only part authorised.

The three areas of focus are technology covering roads, compliance, enforcement and safety and public transport and sponsored services.

Since setting the 2020 Budget, there has been minimal movement in the five-year forecast, an overall reduction of £5m made up of individually immaterial variances.

The programme supports increased levels of investment in technology in the coming years which enable many pillars of the Mayor's Transport Strategy including Healthy Streets, Vision Zero and enhancing customer experience, across three areas of focus: roads technology, compliance, enforcement and safety technology, and public transport technology.

Over 70 per cent of the programme funds refreshes of existing critical technology systems. The scope of the programme has increased since the 2019 Business Plan in line with the 'moderate' scenario in the Long-Term Capital Plan. This new scope includes modernising technology used within bus stations, improving operational colleagues' safety and security through technology, and additional deployable enforcement cameras to improve compliance and safety on our road network.

### **Surface Intelligent Transport Systems (SITS)**

We are leading the way in delivering innovative new road traffic management systems to make journeys by walking, cycling and on buses, as well as essential emergency services and freight trips, as efficient as possible. In late 2020, we deployed the Real Time Optimiser system into live operation at two sites in Wandsworth and West Ham. This significant milestone demonstrates the new system can work effectively and provides a 'living lab' to develop improvements. We are also on track to conclude a trial of video analytics in early 2021. This trial uses anonymised video footage to analyse how people are using London's roads across all modes, including cycling and walking. In December 2020, we re-mobilised the predictive element of SITS which aims to predict impacts of unplanned incidents on the road network and respond automatically, in real time. This predictive element could deliver up to 30 per cent of the benefits of the overall SITS programme.

### **Operational safety and compliance**

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 over 5,000 colleagues across most London Underground stations, staffed bus stations and Victoria Coach Station, and to front line officers within compliance and policing on street. We are on track to complete roll out of cameras to colleagues at all London Underground stations before the end of March 2021. These cameras have already been used to capture footage of incidents of aggressive behaviour towards front-line colleagues, which help our people feel safer.

Work is also continuing to deliver Deployable Enforcement Cameras. On 7 December 2020, we commenced the tender process to select a camera supplier and are on track to roll cameras out from late 2021.

### **Public transport technology**

We are maintaining and developing technology to operate our public transport networks and improve customer experience. It 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. Procurement for this system is progressing well, following commencement of the tender process in October 2020.

# 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) |
|--------------------------|--------------------|--------------------------------------|----------|-----------------------------|-----------------|
| 2021/22                  | 164                | 275                                  | 274      | (1)                         | 110             |

Values shown are for Technology and Data funded projects only and exclude the Emergency Services Network, the Public Cellular Network, the Telecoms Commercialisation Project and other Telecoms projects. The authority and EFC shown are for financial years 2018/19 to 2021/22. The spend authority includes additional programme and project authority approved by Programmes and Investment Committee on 6 March 2020.

## Payments

We have started work to re-procure our Integrated Revenue Collection Contract, which expires in 2025. We aim to award the contract by the end of 2023 to allow an orderly transition which will protect our ability to collect revenue reliably. The first step in this process is an early market engagement questionnaire to help inform our procurement strategy. Responses from potential suppliers are due in mid-January.

## Content and collaboration / Evergreen programme

The Evergreen Programme is aimed at renewing more than 80 per cent of our desktop PCs and moving all users to Windows 10/Office 365. By the end of December 2020, all 32,700 users had been moved to Windows 10 /Office 365 and all 44,323 e-mail inboxes (and associated archive data) had been successfully migrated to Exchange Online, providing a richer user experience with access from any device at any location.

Livelihood is a key enterprise document management tool, largely used for engineering documentation. The previous version was not Windows 10 compatible but was successfully upgraded on 2 November 2020. Microsoft SharePoint is also one of our main departmental file sharing applications which needs to migrate to SharePoint Online. To date, all SharePoint 2007 sites (164 in total), 235 SharePoint 2010 and 832 SharePoint 2013 sites have been migrated to SharePoint Online. Only the five most complicated 2010 sites remain that requires customised development which currently under way. A further 247 SharePoint 2013 sites are left to migrate.

## Networks

We continue to deliver infrastructure to support the Home Office's national Emergency Service Network communications system; in tunnels we are focusing on fixing and testing the leaky feeder cable, with 311km (74 per cent) fixed and 240km (57 per cent, up seven per cent) tested to date. We have completed circa 51 per cent of the required station cabling works (up from 45 per cent) at 70 stations (previously 65 per cent).

There is a risk that delays to the award of our telecoms concession agreement may impact our ability to deliver the national Emergency Service Network to the Home Office's required timeline. We are working with the Home Office on mitigations.

## Data analytics

We have delivered a Bus Day Life Report, which allows the user to easily see bus events data from event files in a user friendly and intuitive manner. As a subsidiary benefit, we also provided a proof of concept report displaying bus driver messages, both on board display messages and SMS alerts back to the bus garages, which include things such as 'observe social distancing', 'face covering enforcement' allowing the bus safety team to easily see which routes were affected by coronavirus safety measures and therefore enabling them to better plan bus route numbers. We have also completed the Bus Radius Report, which is being used by the Police to allow them to see which bus routes fall within the radius of a specific location. Delivering these reports has supported the removal of an expensive legacy tool saving TfL £360k per annum. This tool was created to understand the usage of bus driver messages (SMS). The primary driver was to understand and analyse social distancing measures based on new messages introduced in the light of COVID-19. We have continued to support colleagues across the business with their self-serve offering with the latest support going to colleagues looking at our Vision Zero strategy and looking at collision information across our network.

## 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                  | 251                                  | 251      | 0                           | 251             |

Our 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 already have a strong commitment and a significant degree of third-party funding has been secured for their delivery, a further commitment by Government or other sources is needed to complete the funding package for them.



Over the last quarter, we have continued to review the programme, considering the recent funding agreement with Government and, where necessary, identifying other funding streams to progress the projects. We are working closely with the GLA, central government and other partners to discuss further third-party funding for Growth Fund schemes.

## 2020/21 Strategic Milestone performance

Our 2020/21 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/<br>forecast<br>date | Status     |
|---|------------------|-----------------------------|------------|
| <b>Major projects</b>   |                  |                             |            |
| <b>Four Lines Modernisation ■</b>   |                  |                             |            |
| Completion of foundation for train maintenance access platform at Neasden Depot                                 | 26 August 2020   | 16 July 2020                | Complete ■ |
| SMA03 Ready for revenue   | 31 January 2021  | 31 January 2021             | ■          |
| <b>DLR Rolling Stock and Systems Integration ■</b>  |                  |                             |            |
| Detailed train design complete.   | 9 December 2020  | 9 November 2020             | Complete ■ |
| <b>Piccadilly Line Upgrade programme ■</b>  |                  |                             |            |
| One-person operation CCTV (design and build) approved by TfL for contract award                                 | 14 July 2020     | 14 July 2020                | Complete ■ |
| New passenger trains - Complete the detail design of the new Piccadilly line train                              | 31 March 2021    | 31 March 2021               | ■          |
| <b>Network extensions</b>   |                  |                             |            |
| <b>Northern Line Extension ■</b>  |                  |                             |            |
| Completion of 22kv installation, necessary for providing full traction power for the new extension to Battersea | 1 September 2020 | 1 September 2020            | Complete ■ |
| First test train to run on the Northern Line Extension  | 25 December 2020 | 19 December 2020            | Complete ■ |

| <b>Silvertown Tunnel ■</b>  |                   |                                      |               |
|---|-------------------|--------------------------------------|---------------|
| <b>Milestone description</b>  | <b>Plan date</b>  | <b>Actual/<br/>forecast<br/>date</b> | <b>Status</b> |
| Completion of pump test boreholes and all geotechnical surveys for the north site of the Silvertown Tunnel  | 15 September 2020 | 24 August 2020                       | Complete ■    |
| Contractor compound set up to commence piling operations  | 29 March 2021     | 18 January 2021                      | ■             |
| <b>Barking Riverside Extension ■</b>  |                   |                                      |               |
| Completion of Thames Water works to divert sludge main at Pier 14   | 23 July 2020      | 12 August 20                         | Complete ■    |
| Cadent Gas site attendance delays. Traffic management delay on the first day of the works and slower progress due to safety restriction measures. |                   |                                      |               |
| Completion of piling on all piers   | 23 December 2020  | 20 October 2020                      | Complete ■    |

## Major stations ■

Bank station - Completion of the tunnel primary lining for the new DLR triple escalator

1  
September  
2020

5  
September  
2020

Complete ■

Concept design was prepared using generic loading information. It was subsequently established that specific bollard loading information would be required to confirm the structural element of the concept design. As the bollards are patented products, a commercial arrangement with the manufacturer is required to obtain the necessary information. This has taken a number of months to progress, but the arrangement is now in place. The loading information will now be assessed by our engineers to confirm the preferred design.

New transformer room complete and power on for supply to the new station ticket hall.

22  
February  
2021

18  
December  
2020

Complete ■

## London Underground

### Stations renewals and enhancements ■

Stations - Restart of construction activities at twelve sites (Amersham, Harrow-on-the-Hill, Osterley, Cockfosters, Mill Hill East, Debden, Ickenham, Wimbledon Park, Tottenham Hale, Acton Train Maintenance Shed, Bromley-by-Bow and Finsbury Park)

31 July  
2020

29 July  
2020

Complete ■

Accessibility – Step-free access available at 6 more London Underground stations

31 March  
2021

17 March  
2021

■

Track Renewal – 52-hour possession on the Piccadilly line to re-rail track between Heathrow Terminals 1,2 & 3 and Hatton Cross on the eastbound tunnel

6 July  
2020

6 July  
2020

Complete ■

Track Renewal - 2.7km of renewed track delivered

9 January  
2021

7  
December  
2020

Complete ■

|  |                   |                   |            |
|--|-------------------|-------------------|------------|
| Power, cooling and energy - Factory acceptance test of the new London Underground power control system comprising hardware, software and functionality | 22 February 2021  | 22 February 2021  | ■          |
| <b>Healthy Streets ■</b>   |                   |                   |            |
| Old Street roundabout removal - Permanent traffic switch complete  | 31 March 2021     | 18 January 2021   | ■          |
| Streetspace for London - Complete 40km of improved cycling infrastructure  | 31 Mar 2021       | 31 Mar 2021       | ■          |
| <b>Air quality ■</b>   |                   |                   |            |
| Congestion Charge changes go live  | 22 June 2020      | 18 June 2020      | Complete ■ |
| Direct Vision standards - Go live  | 1 March 2021      | 1 March 2021      | ■          |
| Low Emission Zone stronger - Go live   | 1 March 2021      | 1 March 2021      | ■          |
| Rapid Charge Point network - 300 Rapid Charge Points installed   | 30 December 2020  | 17 December 2020  | Complete ■ |
| <b>Assets ■</b>  |                   |                   |            |
| Victoria Coach Station infrastructure: Complete Fire System works on site  | 17 October 2020   | 22 September 2020 | Complete ■ |
| <b>Public transport ■</b>  |                   |                   |            |
| Trams - Reeves Corner: Embedded rail track renewal. Section one complete   | 14 September 2020 | 31 August 2020    | Complete ■ |
| DLR - 6 Lifts refurbished across the DLR network and brought into use  | 1 March 2021      | 19 February 2021  | ■          |