

Transport for London investment programme report

Quarter 4 2016/17

About Transport for London (TfL)

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

As a core element in the Mayor's overall plan for London, our purpose is to keep London moving, working and growing, and to make life in our city better. We reinvest all of our income to run and improve London's transport services and to make it safer, modern and affordable for everyone. We play a central role in delivering the Mayor's strategy to improve air quality and public health and to make transport accessible to all.

Our operational responsibilities include London Underground, London Buses, Docklands Light Railway (DLR), London Overground, TfL Rail, London Trams, London River Services, London Dial-a-Ride, Victoria Coach Station, Santander Cycles and the Emirates Air Line.

On the roads, we regulate taxis and the private hire trade, run the Congestion Charging scheme, manage the city's 580km red route network, operate all of the Capital's 6,300 traffic signals and work to ensure a safe environment for all road users.

We are delivering one of the world's largest programmes of transport capital investment, which is building the Elizabeth line, modernising Tube services

and stations, transforming the road network and making it safer, especially for more vulnerable road users, such as pedestrians and cyclists.

We work hard to make journeys easier through effective use of technology and data. We provide modern ways to pay through Oyster and contactless payment cards and provide information in a wide range of formats to help people move around London.

Real-time travel information is provided directly by us and through third party organisations, which use the data we make openly and freely available to power apps and other services.

We listen to, and act upon, feedback and complaints to constantly improve our services and work with communities, representative groups, businesses and many other stakeholders to shape transport provision in London.

Improving and expanding transport in London is central to driving economic growth, jobs and housing throughout the United Kingdom. Where possible, we are using our land to provide thousands of new, affordable homes. Our own supply chain creates tens of thousands of jobs and apprenticeships across the country.

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Introduction

This Investment Programme quarterly performance report provides an update on a range of projects that will deliver world-class transport services to London.

This report is changing its focus from projects and programmes with an estimated final cost (EFC) above £50m to updating the Programmes and Investment Committee on major projects and sub-programmes that seek authority each year (unless extraordinary approvals are needed).

For each major project or sub-programme we include a progress update, the key achievements in the quarter and a summary of data at quarter end.

We also include the forecast completion year for sub-programmes and projects with a defined start and end. Works such as carriageway resurfacing or track renewal that are delivered in a prioritised sequence are denoted as 'annual' as they are controlled and measured within each financial year.

Financial records of spend to date, authority and EFC are whole-life. This represents the entire duration of each separate project or programme, except for annual portfolios where spend to date, authority and EFC figures represent the current financial year.

Where authority is significantly lower than EFC in this report, authority has been given for the current stage of works and further authority will be sought when appropriate.

This report does not contain commercially sensitive information and therefore some EFCs and authorities are marked with an asterisk (see below) until the main contract has been awarded.

*

On schemes where there is commercial confidentiality, the EFC, authority and spend to date may also be withheld.

All financial figures are gross and may not appear to align with costs detailed in the TfL Budget, which are net of any third-party funding.

In addition to the committed projects and programmes included in this report, we will be seeking to obtain capital spend authority in future for schemes such as the Bakerloo line extension and Crossrail 2.

Each sub-programme or project also has an overall red, amber or green (RAG) milestone status, which represents the average forecast date variance against plan for 2016/17 budget milestones in line with the following key:

On time or early:



1-89 days late:



90 or more days late:



Schemes without 2016/17 budget milestones are marked:



2016/17 budget milestones – the key milestones listed in the TfL Budget document – are detailed in Appendix A (page 50) for the sub-programmes or projects within this report.

Our Investment Programme is now divided into the following operating areas of the business: Major Projects, London Underground, Surface and Other.

- Major Projects currently includes Four Lines Modernisation (4LM), World Class Capacity, Deep Tube upgrade, Northern line extension, London Underground (LU) major stations, Silvertown Tunnel and Barking Riverside extension, which are covered in pages 13–25 of this report. Line extensions will be reported following authority approval, which is planned for later in the financial year
- London Underground comprises the following sub-programmes: Stations; Signals, control and information; Track and civils; Infrastructure renewals; and Rolling stock renewals, which are covered in pages 26–33
- Surface comprises the following sub-programmes: Healthy Streets; Air quality and environment; Contracted services; and Assets, which are covered in pages 34–43
- Other comprises the following sub-programmes: Elizabeth line integration; City planning; and Technology and data, which are covered in pages 44–48

Business at a glance

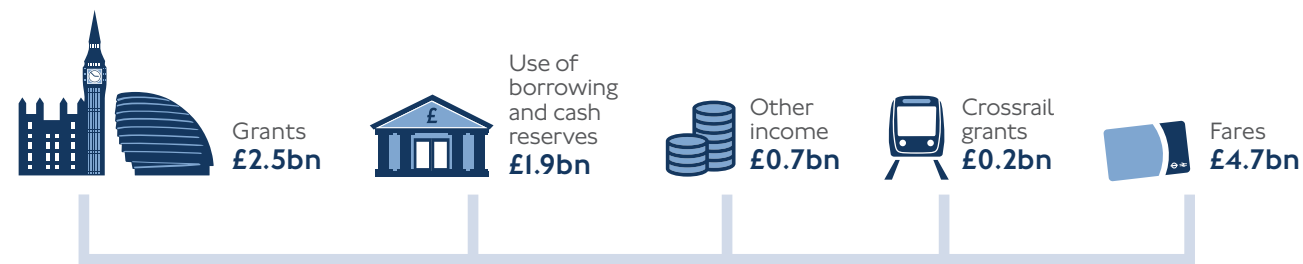
Keeping London moving, working and growing to make life in our city better

How the Investment Programme is governed



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Finances at a glance*



Sources of funds
£10.6bn

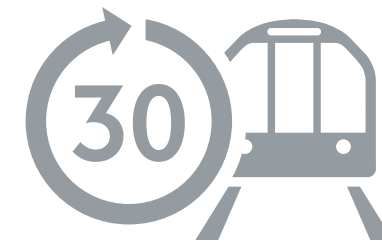
66%
spent on running the network every day.



34%
spent renewing and improving the network through one of the largest capital investment programmes in Europe.

*Based on full year 2015/16

Investment Programme benefits



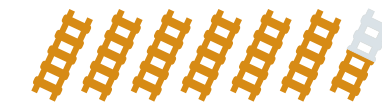
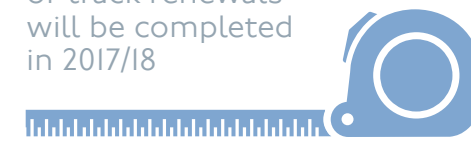
Trains run an hour on the Jubilee line – a train every 120 seconds



Trains run an hour on the Victoria line – a train every 100 seconds

10,000m

of track renewals will be completed in 2017/18



650km

TfL-operated Rail and Underground routes

580km

TfL-operated highways



3,000



Hybrid ULEZ-compliant buses in the fleet by the end of 2017/18 (from 2,330 in 2016/17)



Construction of the

4.5km

Barking Riverside extension is set to start in late 2017

20%▲

in capacity on the Jubilee line by 2020 and the Northern line by 2023, supported by the contract awarded for new trains



Tunnelling between

Battersea and Kennington

will be completed as part of Northern line extension, which will open in 2020



Key achievements

New trains

The Circle, Metropolitan, District and Hammersmith & City lines now run solely with the new, air-conditioned, walk-through S-Stock trains after the last D-Stock train was taken out of service post quarter end in April. This represents the largest train fleet in the country with more than 1,400 carriages. The S-Stock fleet is exceeding our reliability targets.

Victoria line upgrade

Over Easter, we completed commissioning of the Victoria line upgrade (stage 2) and introduced a morning and afternoon 90 minute peak service of 36 trains per hour in May. The new timetable is one of the most frequent metro services in Europe and is London's most intensive modern day service. It was delivered with a 10 per cent cost saving.

Northern line extension

This project is the first major Tube line extension since the Jubilee line in the late 1990s. We launched the first of two tunnel boring machines, called Helen, from Battersea towards Kennington Park. The second, Amy, launched towards Kennington Green in May. About 300,000 tonnes of spoil, equivalent to 33,000 truck journeys, will be excavated from both tunnels and moved via river barges to a land reclamation site.

Victoria station

The first major element of the station, the north ticket hall and new entrance, opened to customers in January. Step-free access from the north ticket hall to the Victoria line opened on 20 April.

Tottenham Court Road

After seven years of work, the modernised station will be able to serve the 200,000 customers we expect to use it every day when the Elizabeth line opens in 2018. Step-free access was provided on 6 February, making it the 71st step-free station on the network. Snagging and remedial works will continue until the summer to complete the construction works.

Lambeth North

We reopened the station on 13 February following the planned replacement of the two lifts. The station closure also allowed us to carry out significant works including new ticket gates and upgraded lighting, which have been well received by customers and stakeholders.

Crossrail

This project remains on schedule and is approaching 85 per cent complete. Seven Elizabeth line trains are now built, extensive testing is under way and the first train is running daily on the Great Eastern Main Line in preparation for when the service is introduced between Shenfield and Liverpool Street next quarter.

Silvertown Tunnel

We issued letters on 13 March to three shortlisted bidders, who were successful at the PQQ stage, confirming that they will be invited to the invitation to negotiate (ITN) stage in due course. The Development Consent Order examination process continued throughout the quarter and concluded on 11 April.

Healthy Streets

As part of the Healthy Streets approach which prioritises health and wellbeing, delivery of the East-West Cycle Superhighway, and Mini-Hollands and Quietways schemes continues. Fifty per cent (43km) of the Central London Cycling Grid network is now complete or under way.

We delivered a total of 159 bus priority schemes in 2016/17, which have contributed to an estimated 106 minutes of bus route journey time savings.

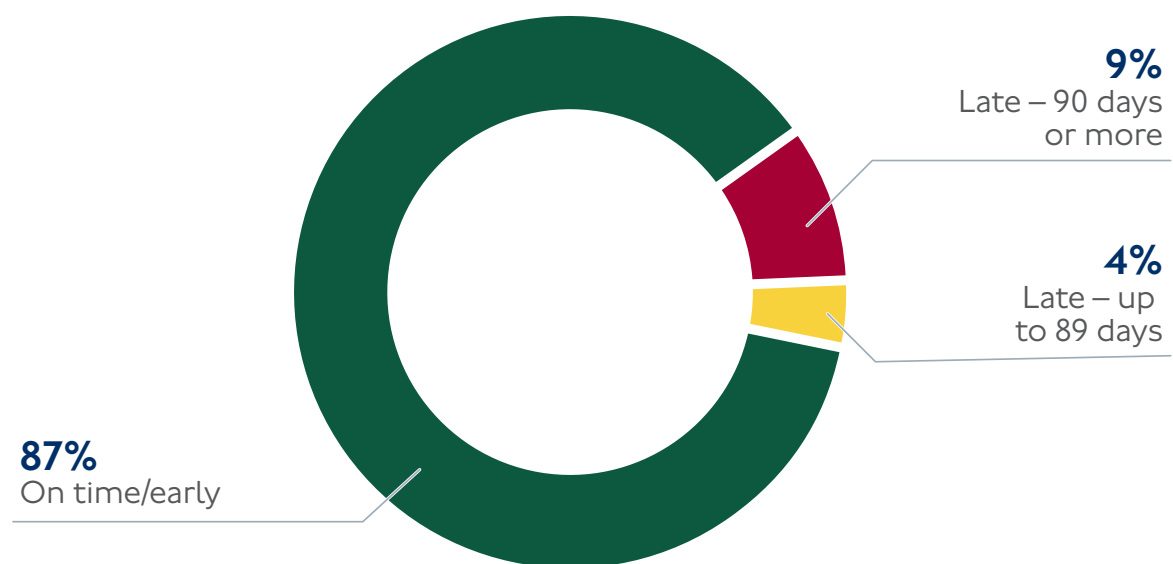
An initial public consultation for the western section of the Oxford Street transformation started as planned on 24 April.

Low emissions

400 Ultra Low Emission Zone (ULEZ) compliant double-deck buses are now in service. Detailed design work is almost complete for delivery of the Emissions Surcharge by autumn.

2016/17 Budget milestone performance

The overall performance for all TfL 2016/17 Budget milestones, which also includes those not covered in this report, is summarised as follows:



The late milestone scores of nine per cent (90 days or more late) and four per cent (up to 89 days late) are primarily driven by the late milestones detailed in Appendix A.

Safety

The safety of our employees and customers is our top priority. We engage with our delivery teams and suppliers to ensure they have the necessary culture and competence to safely deliver our investment programme. We also set clear health and safety requirements within our contract clauses and monitor performance against them.

To reduce the risk of death or injury on the roads, since February 2012 all new and current TfL contracts include work related road risk clauses. These standards apply to any van or lorry used by our suppliers and requires independent audits of their transport operations, training drivers to an approved standard and fitting additional safety equipment to vehicles weighing more than 3.5 tonnes. To reinforce our commitment to these important risk controls, from 1 January 2017 any deliveries failing to comply have been turned away from our sites. This has resulted in a significant improvement in compliance. Seventy-six per cent of deliveries are now fully compliant with our requirements, compared with 18 per cent at the end of 2015/16.

Within LU we are seeking to achieve excellence in safety management. We meet regularly with our suppliers to find practical solutions to shared issues via a 'zero harm' forum.

During 2016/17 we worked with suppliers to seek to eliminate accidental utility damage ('strikes') during highway works. The reductions achieved in the first three quarters of 2016/17, through improvements in planning, utility location information and site practices and discipline, continued throughout Quarter 4 and delivered a significant reduction in the rate of utility strikes during 2016/17 compared with the previous year.

During Quarter 4, our monitoring of Transport for London Road Network (TLRN) work sites focused on standards of housekeeping and traffic management and security. In support of this, we are consolidating our requirements for our construction sites, many of which will also be applied to developers and third parties working on the TLRN. We are also working with the Metropolitan Police and the Security Service to provide Elite Marshal training at major construction sites.

Incident at Victoria station

On 23 February, a member of the public was injured after being struck by architectural metal panelling that became detached from the roof of the Cardinal Place entrance at Victoria station. The site was made safe and additional checks were carried out on similar assets. A formal investigation by LU and the principal contractor, Taylor Woodrow BAM Nuttall (TWBN), has been completed and actions are being implemented.



Major projects

LU Four Lines Modernisation (4LM)

S-Stock Train Roll Out

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2021	2,939	3,144	3,093

2016/17 budget milestone RAG:* On Track

We have introduced 192 new trains on the Circle, Metropolitan, District and Hammersmith & City lines, together with associated depot, station, siding and signal modifications to accommodate them. The remaining scope will upgrade three depots to undertake a long-term train overhaul.

trains from operation and have disposed of 70 to date. The last D-Stock was removed from operation post quarter end in April. All four sub-surface lines now run solely with the new, air-conditioned, walk-through S-Stock. A D-Stock heritage run took place on 7 May.

Following the roll out of all 192 new S-Stock trains last quarter, we have removed all old District line (D-Stock)

As part of our S-Stock depot upgrades, additional train access roads have been delivered into service at Upminster.

Automatic Train Control (ATC)

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2020	993	2,268	2,186

2016/17 budget milestone RAG:* On Track

ATC systems control train movements, allowing more frequent and reliable services. We are providing ATC for our new S-Stock trains to increase capacity and improve journey times.

installation and a further 10 are with Thales for installation. Extensive dynamic testing of the pre-production train is also under way.

We are preparing trains for ATC running by installing the Thales ATC system to the S-Stock fleet. The first train completed installation and was returned to operational service in February 2017. A total of six trains are now back in operation following ATC

ATC signalling system installation has begun in four of the 14 designated areas. To date we have made available five of the 50 signal equipment rooms to Thales to start ATC signalling system installation.


The ATC train simulator is now in operation and pilot training sessions have taken place.

* The milestone RAG relates to in-year (2016/17) budget milestones, which are listed in Appendix A.

LU World class capacity

Capacity upgrades modernisations

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2023	67	167	865

2016/17 budget milestone RAG: 

Capacity upgrades increased the Victoria line peak service from 34 to 36 trains per hour in May, and will increase the Jubilee line to between 34 and 36 trains per hour by 2021, and the Northern line from 24 to 30 by 2023.

During an Easter weekend closure, we commissioned the new Victoria line signalling and software and we introduced a 36 trains per hour timetable in May. This is one of the most frequent and intensive services operating in the world and is the culmination of more than 20 commissionings over the last 12 months. This service allows for 3,000 more customers an hour, making the Victoria line truly world class.

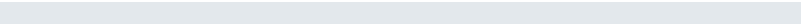
On the Jubilee line we replaced track and associated infrastructure in West Hampstead sidings to introduce scheduled reversing in 2018. A software issue was subsequently identified and a fix is being developed for introduction in late summer. The Jubilee line capacity upgrade remains on schedule for 2021.

Mobilisation of the Northern line upgrade continues on schedule and initial surveys are under way. We are also evaluating tenders for the Jubilee and Northern line additional trains project.

Deep Tube upgrade programme

Deep Tube upgrade programme – design phase

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2018	69	154	117

2016/17 budget milestone RAG: 

The deep Tube upgrade programme will provide more capacity on the Piccadilly, Bakerloo, Central and Waterloo & City lines, plus new signalling systems and 250 new-design, high-capacity, walk-through, air-cooled trains.

We are on schedule to release the invitation to negotiate for the procurement of a new signalling and train control system in summer 2017.

We completed a technical and deliverability evaluation of the rolling stock tender and, resulting from a review of the funding profile, we have released an addendum for bidders to incorporate in their final submissions.

Work has begun on site to reduce electromagnetic interference from other assets by replacing the Delta rail circuits on the legacy signalling system with position sensors, both of which can detect a train's specific location.

LU major stations

Victoria station upgrade

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2018	515	677	587

2016/17 budget milestone RAG: 

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

On 16 January, we opened the north ticket hall and new entrance – the first major element of the new station – to customers, and our staff began using the new station operations room.

Since 20 April, three new lifts have been in customer use and providing step-free access between street level at the Cardinal Place entrance, the north ticket hall and the Victoria line platforms.

Works are under way to reinstate the Duke of York public house. It was demolished to allow jet grouting works for the pedestrian link tunnels, although the original facade has been retained.

We plan to gradually open sections of the new pedestrian tunnels during Quarter I, initially from the north ticket hall to the new District and Circle line underpass, which opened post quarter end in May.

Tottenham Court Road station upgrade

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	469	538	475

2016/17 budget milestone RAG: 

Our upgrade is reducing congestion and providing step-free access and Crossrail interchange, as well as a larger ticket hall, new escalators, and connections to all lines with entrances at street level and plaza.

Step-free access was provided from the street to all the station's platforms when five lifts opened to customers on 6 February. This completes the opening of the new station works and the station modernisation after seven years' work. Snagging and remedial works will continue until the summer.

The restoration of Sir Eduardo Paolozzi's mosaics at the station is also complete. We refurbished around 95 per cent of the mosaics, which cover 950 square metres and contain references to London's entertainment culture, commuters, and the urban economy.

All local improvement works on Oxford Street and Charing Cross Road have been completed and an exit from the old station has been demolished.

Bond Street station upgrade

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	300	308	308

2016/17 budget milestone RAG: 

We are providing greater capacity in preparation for the opening of Crossrail. This includes new lifts for step-free access, more escalators and a new entrance to the north side of Oxford Street.

Works continue at street level to form the new station entrance and the glazing and brickwork facades are complete. Stratford Place works also continue and are planned to complete in the summer.

Inside the station we are continuing escalator and lift installation. Tiling and cladding works to customer tunnels are now under way. Once fit-out is complete, we will undertake commissioning and testing prior to project completion, which is now planned for September following the discovery of asbestos.

We have also undertaken enabling works, which are largely complete, for the over site development.

Bank Bloomberg Place

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	47	58	58

2016/17 budget milestone RAG:* 

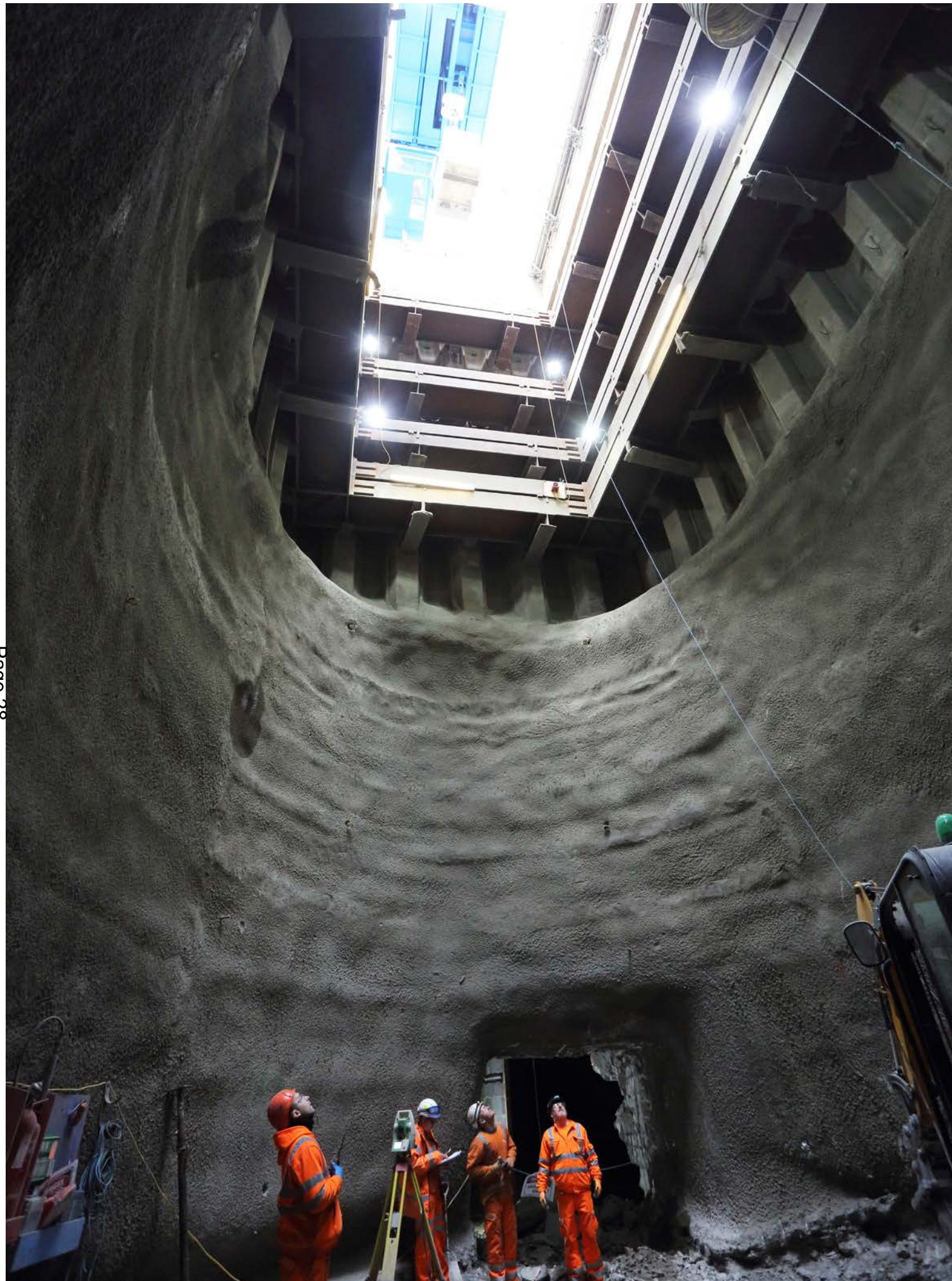
Alongside the Bloomberg Place site redevelopment next to Walbrook, we are building a new station entrance for the Waterloo & City line with connections to the existing concourse. The station box was constructed by Bloomberg on our behalf.

The passageway to the Waterloo & City platform opened to customers at the end of January following the closure of the interchange route. We have begun work in the public areas of the entrance, starting with the installation of high level cabling and lighting, followed by wall and floor finishes in the concourse. The main 'back of house' works are nearly complete.

Four escalators and two lifts that will serve the new Walbrook Square entrance at Bank station are in place. They will provide step-free access to the Waterloo & City line platforms.

The City of London has completed road and pavement improvement works in front of the new station entrance.

* This represents the 2016/17 milestone 'Back of house fit-out complete'. The project completion milestone remains on target for the end of 2017.



Bank station capacity

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2021	290	623	628

2016/17 budget milestone RAG: █

We are increasing the capacity and providing a quicker interchange for customers. These works include a new Northern line southbound tunnel and a new station entrance on Cannon Street.

Works in Arthur Street to construct the main access shaft, which is needed to start on the new Northern line tunnel, are close to completion.

We have completed all demolition works, which consisted of six buildings between Cannon Street and King William Street. We are preparing to start the

piling and excavation for a new station deep basement, lifts, and a set of triple escalators. Works to enable Central line new escalator installation are also progressing well.

We are continuing to install fibre optic cables, cameras and help-points throughout the station. These will become live when the new operations room is complete in the next quarter. Also within the station, we built a cable shaft behind the Central line, which will allow us to relocate the station power supply transformers.

Vauxhall station upgrade

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	28	35	32

2016/17 budget milestone RAG: █

We are reducing congestion by increasing station capacity and delivering step-free access from ticket hall to platform level.

Vauxhall station now provides a fully accessible interchange between rail, bus and Tube services.

Unfortunately, due to delays completing electrical snagging works, which has impacted progress with fit out and redecoration works, the completion date has slipped to June 2017.

Silvertown Tunnel

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2023	26	*	*

2016/17 budget milestone RAG: 

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

Following the evaluation of the seven consortia that submitted pre-qualification questionnaire (PQQ) responses, the 8 March Programmes and Investment Committee endorsed the continuation of a competitive procurement process.

On 13 March, we issued letters to three shortlisted bidders who were successful at the PQQ stage confirming that they will be invited to the invitation to negotiate (ITN) stage in due course.

The Development Consent Order examination process continued throughout the quarter and concluded on 11 April. A decision is expected in autumn. Heads of terms negotiations have been held with land interest owners and a number of land and works agreements have successfully concluded.

The Integrated Assurance Review of the tender documentation recommended that we proceed to the ITN stage.

Barking Riverside extension

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2021	11	*	*

2016/17 budget milestone RAG: 

We are delivering a new rail link to serve the 10,800 new homes planned for the Barking Riverside development area. Our preferred option is to build a spur from the Tilbury Loop line east of Barking to allow our service to extend to Barking Riverside. Construction could start in late 2017 with train services starting in 2021.

We continue the procurement process to deliver the Barking Riverside 4.5km extension with our shortlisted bidders.

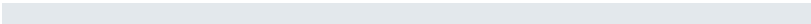
The design process is under way with preliminary designs received. Design completion is being driven by the emerging scope required because of power capacity issues with the existing Network Rail system. A decision is expected in October on the Transport and Works Act Order application that we submitted to the Secretary of State in March 2016.

London Underground

LU stations

Future Stations programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
Mid-2020s	12	18	771

2016/17 budget milestone RAG: 

As London grows and demand for services increases, our stations need to keep pace. This programme assesses how long-term demand growth will impact stations and where capacity upgrades are most needed. It also covers feasibility studies for improvements.

A public consultation ran from 11 January to 8 February seeking feedback on our proposal to build a new second entrance to Camden Town station on Buck Street. We are analysing the responses and are preparing to publish a consultation

report in Quarter 1. We are also reviewing the current station design to ensure it provides the most optimal capacity upgrade.

The proposals for the Holborn station capacity upgrade were well received following discussions with local stakeholders, including landowners and businesses.

We have also begun outline design development for the Elephant & Castle station capacity upgrade.

Integrated Stations Programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2019	147	333	201

2016/17 budget milestone RAG: 

We are making improvements at stations, including five that interchange with the Elizabeth line, to keep them safe, maintainable and operable.

So far, we have completed works at nine stations and we are planning improvement works at further stations.

We are continuing to modernise the Northern line ticket hall at Charing Cross station. This includes construction of a

new entrance and retail unit, installation of water management systems and re-tiling of the walls and floors. The station remains on schedule to re-open in July.

At Liverpool Street and Moorgate stations, we are successfully carrying out ambience improvements, including re-tiling of the floors and columns, without closing the stations to customers.

LU Crossrail works

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2019	263	294	296

2016/17 budget milestone RAG: 

The Elizabeth line will be fully operational in 2019, connecting Reading and Heathrow in the west to Shenfield and Abbey Wood in the east. We are supporting Crossrail with the design, build and handover of five stations, which LU will operate and maintain.

In collaboration with Crossrail we have been able to reduce the need to work at height in ventilation shafts at Bond

Street by using camera technology to perform inspections.

The extension to the Bond Street station operations room has been completed on time and to budget.

Innovation at Farringdon has enabled us to utilise current assets (service lifts), avoiding the need to construct additional ones, generating significant cost savings.

LU track and civils

Track and drainage renewals

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
Annual	180	186	180

2016/17 budget milestone RAG: 

To continually improve reliability, reduce maintenance costs and allow capacity increases, we are replacing our ballasted and deep Tube track, points and crossings, and improving track drainage infrastructure.

We replaced more than 1.7km of ballasted track, 1.5km of deep Tube track, 1.7km of drainage and seven sets of points in Quarter 4.

A Christmas blockade used, for the first time on our network, two synchronised ballast compression machines during the installation of a new crossover at Earl's Court. This will improve reliability and support a service frequency increase to 32tph on the District line.

Our track replacement beneath the new Earl's Court development was the first to install padded wide sleepers and baseplates to reduce noise and vibration.

We installed new longer crossovers at West Hampstead to allow timetabled reversing from 2018 to support future Jubilee line capacity increases, and a new double junction on the Circle line at Farringdon for the 4LM programme.

We continue overnight ballasted track replacement between Baker Street and Finchley Road using new concrete slab track.

Changing our approach on how we renew track allowed us to undertake works at night and avoid nine weekend closures on the Piccadilly line.

LU infrastructure renewals

Power upgrades

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2020	467	521	495

2016/17 budget milestone RAG: 

We are providing traction and signalling power supply upgrades to replace obsolete equipment and support the capacity and service frequency increases being delivered by our line modernisations.

We commissioned a new ventilation fan control software at Forest Road substation, where the upgraded cooling ensures that temperatures within the building remain at the optimum level for equipment performance. This was an enabler for the

Victoria line service frequency uplift from 33 to 36 trains per hour.

New transformers were switched on at Shepherd's Bush traction substation and Stratford Market depot to increase the traction power capacity to enable future train service increases.

Site work continues on Islington's Bunhill waste heat scheme, where waste heat from the Northern line will be piped into homes.

Lifts and escalators

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2035	356	753	934

2016/17 budget milestone RAG: 

Our fleet of lifts and escalators require refurbishment and renewal to provide continued safe and reliable use for our customers.

We reopened Lambeth North station on 13 February following the replacement of the two lifts. During the station closure we were able to also complete significant ambience works including new ticket gates and upgraded lighting.

The first of the planned lift refurbishments at Caledonian Road has been completed, and returned to service.

We have completed a number of works ahead of schedule, reducing the impact on our customers. These include the new escalator at Holborn, refurbished escalators at Canning Town and Canary Wharf and a refurbished lift at Westminster.

LU rolling stock renewals

Rolling stock renewals

Forecast completion	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2024	121	449	693*

2016/17 budget milestone RAG:

We are modifying passenger rolling stock to improve safety, accessibility, reliability and customer satisfaction, while reducing maintenance costs. We are also modifying existing engineering vehicles that support track maintenance or procuring replacement vehicles to reduce the cost of infrastructure renewals and minimise line closure requirements.

A challenge from an unsuccessful bidder for the manufacture and supply contract for a replacement propulsion system for the Central line fleet has caused us to pause the contract award 'standstill period'. We are working to resolve the issue.

We have issued the pre-qualification questionnaire for the contract to design, manufacture and supply a passenger information system for the Central and Bakerloo lines and saloon carriage CCTV

for the Central line fleet and we expect to receive submissions in Quarter I.

To ensure Bakerloo train reliability continues until its replacement during the deep Tube upgrade, a series of improvement works that include Rail Vehicle Accessibility Regulation (RVAR) requirements are being carried out. Work is under way on trains I1 and I2.

As part of the works to mitigate against service disruption on the Piccadilly line during leaf-fall season, as experienced in 2016, we are converting two Piccadilly line units into rail adhesion trains (RATs).

The first refurbished Jubilee line train has entered service, and will be followed by an additional refurbished train every week. The refurbishment included a partitioned wheelchair area, compliant with RVAR, new flooring, lighting and refreshed decor. Reliability works were

also completed, sealing the roof and windows to address water ingress issues.

We are also carrying out improvement works on our engineering vehicles, with life extension works complete on 22 of the 29 battery locomotives. Six have had traction equipment overhauls and all 29 have been upgraded to 750V.

We continue work to reduce costs and access requirements, and improve the reliability and life of the assets by increasing mechanisation of track maintenance and renewal activities. Assembly of a tilt wagon and crane, which will reduce installation time and cost by allowing prefabricated point and crossing modules to be used, continues

on schedule. We have completed proof of concept trials for a mechanised track renewal vehicle.

On our Trains Modification Unit workshop project, we are evaluating the bids that we received for the design and build contract and we expect to award the contract in the summer.


Since the last Programmes and Investment Committee in March 2017, Project Assurance has completed Integrated Assurance Reviews on rolling stock renewals programme (annual) and Central line improvement programme (annual).

* Since the Quarter 4 forecast a further £10m of projects have transferred into the programme.

LU signals, control and information

Information communication technology transformation

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2018	31	36	73

2016/17 budget milestone RAG: 

We are improving capability to support delivery of our priorities of safety, reliability, capacity, and transformation of customer service, including the upgrade of operationally critical and safety-related systems.

We have relocated cameras, electronic displays, signs and seating, and are painting platform end barriers on busy platforms to increase visibility for train drivers. Survey and design work for further customer safety improvements on platforms is under way.


We continue to enable maintenance teams to remotely access, capture and update maintenance data by providing mobile functionality to all relevant employees. This completed on schedule in May.

To enhance our ability to remotely view CCTV from more stations, detailed design reviews continue and 90 per cent of surveys are complete.

We are enhancing customer information at Circle, Metropolitan, District and Hammersmith & City line stations. All installations are complete in the first tranche of nine stations with local displays showing destinations and arrival times for the first time on the Hammersmith branch.

Piccadilly line interim upgrade

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2018	25	47	45

2016/17 budget milestone RAG: 

We are taking an interim step to replace the life-expired Piccadilly line control system and control centre ahead of a full line upgrade planned as part of our Deep Tube upgrade programme.

The new Piccadilly line signalling control system, which improves the reliability of the line's signalling and allows staff to better monitor and manage the line, continues to operate successfully between Cockfosters and Earl's Court. We are currently installing the infrastructure to extend the system further west.

We have let a contract to fit out a building in west London to house the new Piccadilly line service control centre.

We also commissioned upgraded customer information systems at Arnos Grove.

Surface

Healthy Streets

Healthy Streets programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2021/22*	n/a	439**	1,590

2016/17 budget milestone RAG: On Track

The Healthy Streets approach prioritises health and wellbeing, with the overall objective of delivering a transport system where everyone can travel safely by the healthiest and most resource and space-efficient modes, specifically walking, cycling and public transport.

Cycle Superhighways

On East-West, works are complete between Parliament Square and Tower Hill. Remaining works are under way between Great George Street and Hyde Park Corner, including resurfacing works at Lancaster Gate.

CS North-South Phase 2 and CSII (Swiss Cottage section only) concept designs are complete and detailed design for both started in March.

Mini-Hollands

Of the 102 schemes (97 infrastructure and five supporting measures), five were completed in the quarter. The total to date of 15 is on schedule.

TLRN schemes that completed in the London Borough of Enfield included Conduit Lane/A406, A406/A10 and A10/Deansway. Construction of the A105 Green Lanes scheme continues.

In the Royal Borough of Kingston, Portsmouth Road is complete and the launch event on 22 April was very successful. Work has started at St Mark's Hill.

Central London Cycling Grid

Construction of the core network continues, with 55 per cent (47km) complete or under construction. The City of London has installed wayfinding signs and carriageway markings on Q11 from The City to Canonbury. We have received designs for 82km of circa 85km of the network, of which we have approved 78km.

As part of the future Grid programme, 62km of additional Grid routes have been identified, which we are prioritising for delivery.



* The forecast completion year relates to the Business Plan period until 2021/22.

** Programme and project authority was approved by the Programmes and Investment Committee in Quarter 4 for activities from the start of 2017/18 therefore spend to date will be reported from Quarter 1, 2017/18.

Healthy Streets programme continued

Cycling Quietways

Construction is complete or under way on 70km out of a potential c. 250km of new routes. Of this, 42km are the first seven Phase 1 routes and the remaining 28km are Phase 2, where construction has already begun on another seven routes including Q14 Thames Path, Q16 Grand Union Canal, Newham Greenway, Ealing Broadway to Greenford, Notting Hill to East Acton and Wimbledon to Raynes Park.

Oxford Street

High-level proposals are being developed for the western section of the Oxford Street transformation ahead of an initial public consultation, which started as planned on 24 April.

Rotherhithe to Canary Wharf river crossing

The Rotherhithe to Canary Wharf river crossing will provide a new strategic connection across the river in east London. Work is progressing on design and functional requirements, possible consenting routes, procurement, funding and plans for community engagement.

Transformational programme

Archway gyratory works are 90 per cent complete. Works to create the new public space continue.

Construction for Westminster Bridge South started on 11 April. Works were postponed slightly following the terrorist incident that occurred on Westminster Bridge in March.

Interim changes including traffic-calming measures and wider footways were completed at Lambeth Bridge North on 7 March while we design a long-term junction solution.

Land acquisition options are being evaluated for Wandsworth gyratory removal and we expect to seek approval from the Board later in 2017 to start a Compulsory Purchase Order process.

Bus priority reliability and growth programme

We delivered 62 bus priority schemes across 22 London boroughs this quarter. The 2016/17 total is 159, which exceeds our target of 148. These have all contributed to an estimated 106 minutes of bus route journey time savings.

Multi-modal network improvements

This includes small-scale schemes on the TLRN and borough networks that support delivery of Healthy Streets outcomes. Major junction enhancements were completed at key TLRN locations including on the A10 and the A12 to improve safety and journey time reliability.

Technology programme

On the Surface Intelligent Transport System (SITS) project, the procurement to replace the UTC and SCOOT systems began on 17 March 2017. This process seeks to deliver the replacement systems and retain intellectual property rights to the SCOOT software. We are preparing to procure a replacement system for managing incidents at the same time.

Other programmes and projects

Construction of Crossrail complementary measures continues ahead of schedule with nine of the 17 schemes under way. The Chadwell Heath scheme was completed in March.

Assurance

Project Assurance has completed Integrated Assurance Reviews on the bus priority programme (annual), Crossrail complementary measures (option stage), Nine Elms final highway improvement (option stage), Oxford Street transformation (initiation stage) and Rotherhithe to Canary Wharf river crossing (initiation stage).



Air quality and environment

Ultra Low Emission Zone (ULEZ)

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2019	6	*	*

2016/17 budget milestone RAG:

We plan to introduce an Ultra Low Emission Zone (ULEZ) and a portfolio of associated Air Quality Measures in the capital to significantly improve air quality and, in turn, the health of Londoners.

We have now delivered 400 ULEZ compliant double-deck buses into service.

The Emissions Surcharge means drivers of the oldest, most polluting vehicles will pay £10 in addition to the existing Congestion Charge. Detailed design work is almost complete for delivery by autumn.

We are also finalising the requirements which our suppliers will use to build the system for the central London ULEZ.

We continue procurement activity for the contract to supply nitrogen oxide (NOx) abatement equipment on buses. Eight of the 11 bus route operators have submitted plans for fitting abatement equipment to their fleets. The roll-out is being coordinated centrally across the route operators and successful framework suppliers when appointed.

Contracted services

Cleaner and greener buses

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	339	347	347

2016/17 budget milestone RAG: 

913 New Routemasters (out of a total of 1,000) are now in service across 29 routes following the conversion of route EL1 (Ilford Hill to Rivergate Centre), EL2 (Becontree Heath Leisure Centre to Dagenham Dock Terminus) and EL3 (Chadwell Heath Lane to Rivergate Centre).

We have fitted opening windows to 791 buses in the fleet.

London Overground stations capacity programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2018	21	29	32

2016/17 budget milestone RAG: 

We are increasing capacity at some of our busiest London Overground stations. This includes work to reduce peak period congestion and improve accessibility at Dalston Kingsland and West Hampstead stations.

We continue the design for West Hampstead station to improve the entrance and access to the platforms. We have completed the asbestos removal and relocation of the platform waiting shelters and are finalising the ground levelling works by platform 1.

The new station will provide step-free access to both platforms via lifts on a new wide footbridge. It is designed to accommodate future growth in customer numbers, with more gates and a much larger customer circulation area. The design also incorporates a widened pavement and integration with the Ballymore housing development and public square.

London Road User Charging (LRUC) and Traffic Enforcement Notice Processing (TENP) Contract Re-let

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	75	77	76

2016/17 budget milestone RAG: 

We have re-let the TENP and LRUC contracts to consolidate and simplify the services after the expiry of the current contracts. The new service offers enhancements and increased self-service capability to customers.

Following the delayed but successful go live of the new systems and services in September, the service has transferred to Capita for operational delivery under TfL management. The programme remains scheduled to close in summer 2017, following the recent delivery of new functionality that allows customers to view historic transactions online.

Cycle Hire re-let

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2018	21	52	44

2016/17 budget milestone RAG: 

We are delivering an improved Cycle Hire operating model. Contracts will transfer to the new suppliers in 2017, who will develop service enhancements, such as Single Sign On, for go live in 2018.

The incumbent service provider, Serco, continues exit planning activities for areas that have previously been designated to transfer to other providers, such as on-street fixed assets, contact centre, web and back office

systems. Transition of some activities has already begun including, importantly, the successful transfer of the back office systems from Serco to our Data Centre (to be operated by Cubic).

Work is also focused on operating processes to ensure that, in a future world with many service providers and our own service delivery (as opposed to all services resting with Serco), all can effectively communicate with each other.



Assets

Assets capital programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
Annual	78	82	78

2016/17 budget milestone RAG:

The Assets Capital Programme is an annual programme of maintenance and renewal that lengthens the life of assets relating to the strategic road network.

This quarter we resurfaced more than 162,000 square metres of carriageway at locations including A12 East Cross Route (northbound), four slip roads at A406 Waterworks Corner, A3 Kingston Bypass (the TRLN Boundary up to South Lane), A406 North Circular (the A404 offslip road intersections) and A210 Eltham

Road to A205 Westthorne Avenue.

We also replaced 22,000 square metres of footway including A23 Brighton Road (northbound), A2 New Cross Road to Deptford High Street and A40 Western Avenue.

Other works included replacing more than 3,110 conventional lights with energy-efficient LEDs and more than 545 lighting columns on A127 Southend Road.

Safety camera replacement programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	34	37	35

2016/17 budget milestone RAG:

The programme's core objective is to maintain the existing road safety benefits provided by safety cameras by replacing life-expired wet film cameras with digital units.

We have replaced 387 of 397 spot speed cameras and 234 of 235 red light wet film cameras with digital units to date.

These projects are currently on hold pending a decision on operational funding in future years.

A fourth average speed corridor trial went live along the A2 on 1 March 2017. The Metropolitan Police Service is continuing to enforce average speed on the A40, A406 and A316.

Other

Technology and data

Customer experience – Future Ticketing Programme Phase 3, 4 and 5

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2017	21	44	44

2016/17 budget milestone RAG:

We are making ticketing more convenient for our customers while reducing fare revenue collection costs. We are providing further benefits for Oyster and contactless customers, including a new mobile ticketing app and improved online processes.

On Phase 4, we are continuing a customer pilot of the app. We will make faster online purchases available this summer and this will be followed by the launch of the app to rail customers and extending sales made through the app to bus customers in autumn.

Phase 3 development continues and the revised card scheme rules for Visa EU have been implemented. A pilot is under way to validate that all of the interfaces and components work as expected for our customers.





Elizabeth line integration

On-network stations improvement programme

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2019	23	94	94

2016/17 budget milestone RAG:

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

External renovations and internal upgrades at Manor Park, Seven Kings, Chadwell Heath and Brentwood are complete. Ilford now has more capacity following our completion of a new western entrance.

Works at the other Great Eastern stations continue with building refurbishments at Gidea Park, Goodmayes and Harold Wood. Construction of new footbridges and lifts continues at Maryland, Manor Park and Seven Kings with demolition of old structures and the majority of foundation works completed.

Lift design on the western section is complete. A tender for the detailed design and build will be issued in June, with contract award for the main works in November 2017. Completion is planned for mid-2019 ahead of the introduction of Elizabeth line services in December 2019.

Crossrail rolling stock

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2019	320	1,091	1,091

2016/17 budget milestone RAG: On Track

We are introducing the new Elizabeth line Crossrail train fleet in phases by December 2019 and building a depot to provide train maintenance facilities.

Seven trains are built and the first train has been delivered to London. Train testing continues at the Melton Mowbray test track. The trains are also running daily on the Great Eastern Main Line in preparation for when the service is introduced between Shenfield and Liverpool Street next quarter. We completed the first phase of automatic train control testing (for use on services between Paddington and Abbey Wood from December 2018) at the test track.

Network Rail installation is nearly complete for the new European-standard signalling system on the Heathrow branch in readiness for train testing, which started post quarter end in May 2017, ahead of Heathrow to Paddington services starting in May 2018.

We continue work at the Old Oak Common depot to construct the main maintenance building and the laying of sidings.

Crossrail

Crossrail

Forecast completion year	Spend to date (£m)	Spend authority (£m)	Estimated final cost (£m)
2019	*	14,800	*

2016/17 budget milestone RAG: On Track

Europe's largest infrastructure project will deliver a new railway from Reading and Heathrow in the west to Shenfield and Abbey Wood in the east. Crossrail Limited is managing construction, and when TfL-run services open through central London in December 2018 it will be known as the Elizabeth line.

The project remains on time and within the funding envelope (the committed funding) of £14.8bn. It is approaching 85 per cent complete.

Crossrail's central section construction programme remains focused on fitting-out the tunnels, shafts and portals. A number of significant milestones were achieved this quarter including:

- Ilford Yard ready for stabling of the first of the new Class 345 trains which will start service between Shenfield and Liverpool Street in Quarter I
- Completion of construction of the striking new architectural ceilings at Farringdon and Liverpool Street Elizabeth line stations

- Commencing installation of platform screen doors in the new stations

Surface finishes continue to be applied to public spaces in the interior and exterior of the new stations. Escalators and lifts are also being installed. Track installation continues and 85 per cent has now been completed.

Network Rail Crossrail works, which are now 80 per cent complete overall, have continued on both east and west surface sections. Work has focused on Driver Only Operation CCTV, track and gauging as well as signalling and electrification and station upgrades.

* Crossrail will open in five stages from mid-2017 until December 2019. The Elizabeth line (Stage 3) is December 2018.

Appendices

Appendix A: 2016/17 Budget milestone performance

The TfL 2016/17 Budget milestones for the projects or programmes covered in this report are listed below. The red, amber and green (RAG) status indicates delivery forecast against the current plan date in line with the following key:

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

Commentary is provided on milestones that are forecast to be delivered significantly (more than 90 days) late.

Milestone description	Plan date	Actual/ forecast date	Status
LU Four Lines Modernisation			
S-Stock train roll-out			
Roll-out of new air-conditioned trains on the District line complete	31-Dec-16	10-Nov-16	Complete
Last D-Stock removed from normal operational service	31-Dec-16	21-Apr-17	Complete
Platform train interface nosing stone moves complete	31-Mar-17	30-Nov-17	■
We decided to retain some D-Stock until spring 2017 to provide more time for the S-Stock fleet maintenance regime to be fully established. This impacted the start of the nosing moves at some platforms where the move is incompatible with D-Stock at these stations. The postponement of the D-Stock removal and the resulting impact on the nosing stone moves has led to a £2.1m cost deferral until the start of 2017/18 but with no overall impact on EFC, scope or benefits.			
Automatic Train Control (ATC)			
Thales installation start for Sloane Square to Paddington (Circle)/Barons Court/Fulham Broadway/Olympia (migration area 05)	28-May-16	07-Apr-16	Complete
Hammersmith service control centre available for pilot training	28-May-16	07-Apr-16	Complete
Thales occupation at Hammersmith Service Control Centre	21-Jul-16	25-Apr-16	Complete
Guideway data gathering complete	05-Dec-16	15-Aug-16	Complete
Hammersmith depot conversion Phase 4 (Roads 6, 8, 9 and 10) physical works complete	04-Feb-17	24-Aug-16	Complete
Farringdon City siding concept design complete	15-Oct-16	12-Oct-16	Complete
Pre production (V2) train handed over to Thales (S8 and S7)	09-Nov-16	02-Nov-16	Complete
ATC final design review 2 complete	07-Mar-17	12-Dec-16	Complete

Milestone description	Plan date	Actual/ forecast date	Status
Thales installation starts at South Ealing test track	08-Sep-16	-	■
The scope of this milestone was removed as the South Ealing site proved unsuitable for use as an ATC test track facility. Thales installation was therefore not required and the overall schedule was not affected as an alternative test track was used.			
Information control system final design review complete	15-Oct-16	27-Apr-17	■
This milestone date has moved to complete actions that were raised at the design review. Hardware is being procured to mitigate delay and any impact on the start of training and completion of this milestone remains ahead of the migration area commissionings and has had no impact on programme cost.			
Migration areas 02, 07, 08, 09, 11 & 14 signal equipment rooms available to Thales	31-Mar-17	01-Sep-17	■
We reworked the design at Harrow-on-the-Hill to change the planned location of the signal equipment rooms to accommodate the planned commercial development at the station.			
Migration areas 04, 05, 06 & 11 signal equipment rooms available to Thales	07-Jan-17	25-Oct-17	■
Following the discovery of asbestos at Embankment, the start on site was delayed and this has also impacted the start on site at West Kensington.			
Euston Square to Monument/Stepney Green signal equipment rooms available to Thales	23-Jul-16	01-Nov-17	■
Design issues have necessitated a redesign of Aldgate, and we are reviewing Tower Hill following construction queries raised by our principal contractor.			
We are working with Thales to ensure that the delay to signal equipment rooms can be accommodated within their schedule to start migration area fit-out.			
Northern Line Extension			
Battersea crossover box retaining walls, piles and plunged columns all complete	02-Jul-16	10-May-16	Complete
Battersea station box initial civils design issued for construction	19-Jul-16	17-Jun-16	Complete
Battersea station box retaining walls, piles and plunged columns all complete	20-Mar-17	31-Mar-17	Complete
LU major stations			
Victoria station upgrade			
Hand back north ticket hall worksites to Land Securities	31-Dec-16	29-Jul-16	Complete
South ticket hall station operations room complete	31-Dec-16	16-Jan-17	Complete
North ticket hall complete	31-Dec-16	16-Jan-17	Complete
Tottenham Court Road station upgrade			
Erection of glass frame to north plaza entrance	30-Sep-16	15-Aug-16	Complete
New customer facilities open including new entrances to the station and new ticket hall	31-Dec-16	20-Dec-16	Complete

Milestone description	Plan date	Actual/ forecast date	Status
Bond Street station upgrade			
Tunnelling set up decommissioned	18-Jul-16	24-May-16	Complete
Bank Bloomberg			
Back of house fit-out complete	30-Dec-16	20-Jun-17	■
The project experienced delays at the start and we continue to try to mitigate this where possible. There is no impact on EFC, scope or benefits as the project has a fixed (Option A) contract and completion remains on target for the end of 2017. However, the contractor later submitted several 'compensation event' notifications with time and cost implications under discussion at senior level.			
Bank station capacity			
Start on site	16-Jun-16	25-Apr-16	Complete
Silvertown Tunnel			
Development Consent Order application acceptance	24-Jun-16	31-May-16	Complete
Invitation to negotiate issued	02-Feb-17	08-Jun-17	Complete
The revised forecast date reflects increased work required to complete the procurement documentation as a result of the complexity of the operations and maintenance requirements. The original timescales for contract award by January 2019 and tunnel opening by summer 2023 are unaffected and there is no change to the overall project scope. The costs for accelerating the project to contain the delay to the issue of the ITN are currently being reviewed to mitigate cost increase.			
Barking Riverside extension			
Completion of GRIP 4 design submissions to London Overground	31-Mar-17	07-Aug-17	■
Completion of the design is being driven by the emerging scope required due to power capacity issues with the existing Network Rail system. At this stage of the project, there are sufficient opportunities to mitigate the later than planned GRIP 4 completion without impacting the start of services in spring 2021.			
LU stations			
Integrated stations programme			
South Kensington - finish on site	30-May-16	22-Feb-16	Complete
Holland Park - completion of closure works (station re-opens)	01-Sep-16	31-Jul-16	Complete
Sloane Square - start on site	14-Nov-16	20-Mar-17	Complete
LU track and civils			
Track and drainage renewals			
Cumulative 16 per cent of track replaced on Four Lines Modernisation and Bakerloo, Central, Victoria and Waterloo and City lines	31-Dec-16	17-Jun-16	Complete
Renew points and crossing units - achieve 16 units	31-Mar-17	31-Mar-17	Complete
Ballasted track renewal and re-ballast - achieve 13,500 metres	31-Mar-17	31-Mar-17	Complete

Milestone description	Plan date	Actual/ forecast date	Status
Track drainage renewal - achieve 7,000 metres	31-Mar-17	31-Mar-17	Complete
Deep Tube renewal - achieve 6,448 metres	31-Mar-17	31-Mar-17	Complete
LU infrastructure renewals			
Power upgrades			
Key enabling works completed for high voltage network resilience cable installation	30-May-16	09-May-16	Complete
Final remote terminal unit delivered to site for the west end of the District line high voltage traction	25-Jul-16	13-Jun-16	Complete
Gate 6 review undertaken of east end of the District line high voltage traction substation upgrades	06-Oct-16	05-Oct-16	Complete
Contract recommendations delivered for Power Asset Renewals portfolio	28-Nov-16	28-Nov-16	Complete
LU lifts and escalators			
St Johns Wood station - bring into use escalator 3	03-May-16	05-Apr-16	Complete
Completion and consent to operate report approved for Elephant & Castle return to service lift 1	05-Jul-16	18-May-16	Complete
West Ham station - bring into use escalator 5	22-Aug-16	22-Jul-16	Complete
Chancery Lane station - bring into use escalator 1	23-Jan-17	28-Nov-16	Complete
LU rolling stock renewals			
Central line traction card overhaul of 90 trains complete	29-Mar-17	08-May-17	
The six week delay in completing the overhaul of the Central line traction cards did not increase costs but there has been a slight delay in realising the reliability benefits on a small number of trains.			
Healthy Streets			
Cycle Superhighways (CSH)			
CS7 completion of construction (excludes Balls Pond Road)	01-Jul-16	24-Mar-16	Complete
CS2U completion of construction	08-Jul-16	26-Apr-16	Complete
CSH North-South completion of construction Phase I (St George's Circus to Stonecutter Street)	18-Jul-16	28-Apr-16	Complete
CSH East-West completion of construction Parliament Square to Tower Hill (except potential permanent cheme at Trinity Square)	22-Jul-16	05-May-16	Complete
Cycling Quietways			
Completion of first two routes	31-Dec-16	15-Dec-16	Complete
Technology			
Surface Intelligent Transport System (SITS) procurement started	21-Oct-16	25-Jul-16	Complete

Milestone description	Plan date	Actual/ forecast date	Status
Transformational programme			
Stockwell Gyrotory completion of works (including urban realm)	22-Jan-17	23-Dec-16	Complete
Bus priority reliability and growth			
Construction completed for 50 per cent of top 24 Borough Reliability and Growth schemes	31-Mar-17	03-Mar-17	Complete
Air quality and environment			
Ultra Low Emission Zone (ULEZ)			
Appoint taxi grant and compensation scheme delivery agent	29-Sep-16	01-Sep-16	Complete
Contracted services			
Cleaner and greener buses			
Delivery of 800 New Routemasters	31-Jul-16	06-Jun-16	Complete
London Overground stations capacity programme			
Start on site at West Hampstead station	07-Jan-17	07-Nov-16	Complete
Start on site at Hackney Central station	31-Mar-17	-	■
A change of scope and third party funding is being considered for Hackney Central station.			
London Road User Charging (LRUC) and Traffic Enforcement Notice Processing Contract Re-let			
LRUC service go live	03-May-16	26-Sep-16	Complete
LRUC operations review	31-Mar-17	22-Dec-16	Complete
Cycle Hire re-let			
Bike maintenance and supply contract award	30-Sep-16	28-Sep-16	Complete
Elizabeth line integration			
Crossrail rolling stock			
Driver training simulator available at Ilford	31-Jan-17	27-Sep-16	Complete
First train (class 345) delivered to Ilford for provisional acceptance	28-Feb-17	06-Mar-17	Complete



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