

Transport For London

Projects and Planning Panel

Subject: Investment Programme Report – Fourth Quarter 2011/12

Date: 31 May 2012

1 Purpose and Decision Required

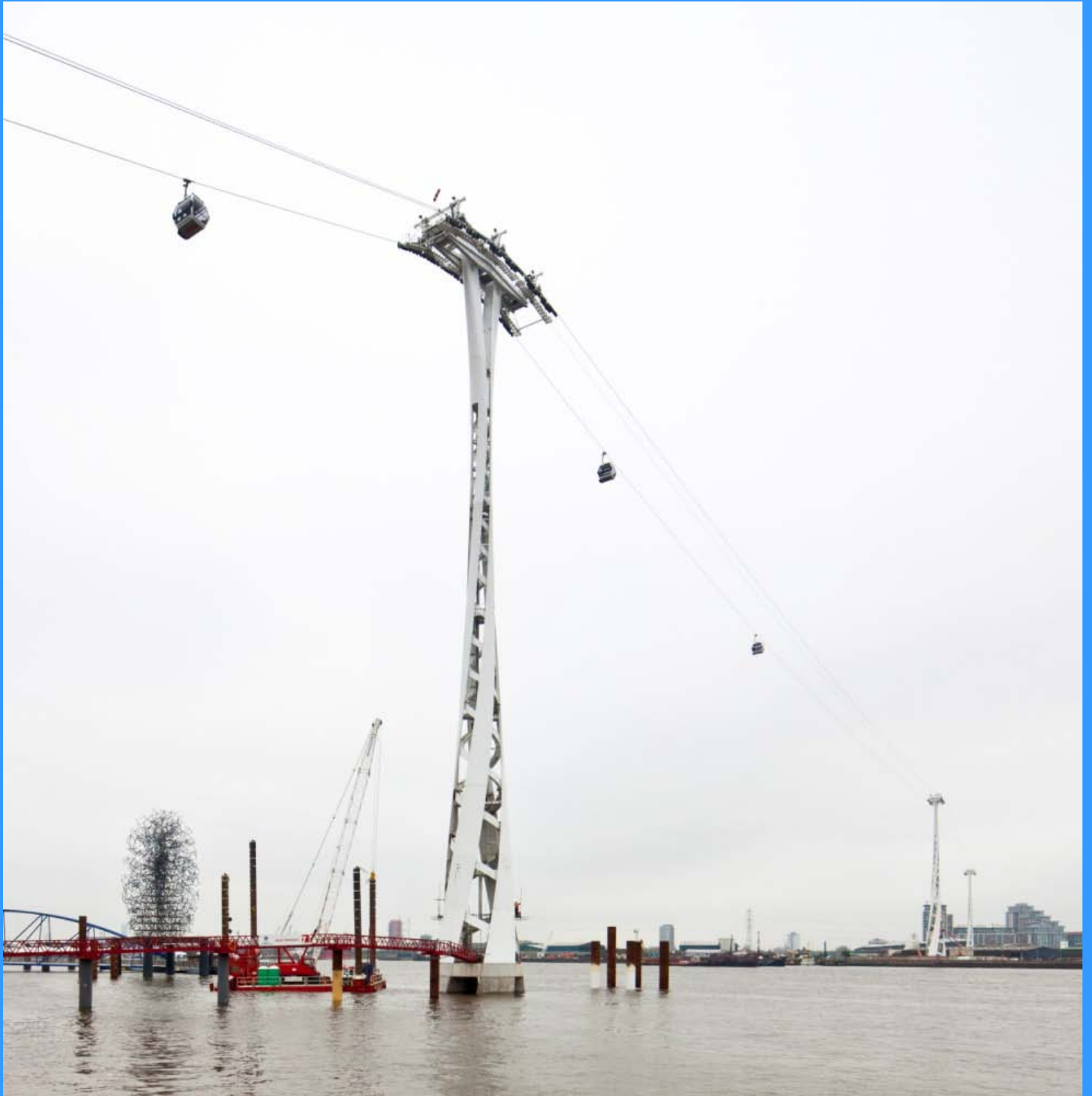
- 1.1 The Investment Programme report for the fourth quarter of 2011/12 (11 December 2011 – 31 March 2012) is attached to inform the Panel of Transport for London's Investment Programme performance.

2 Recommendation

- 2.1 The Committee is asked to NOTE this report.

3 Contact

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Investment Programme Report Fourth Quarter 2011/12

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Transport for London

Investment Programme Report

Fourth Quarter, 2011/12 (11 December 2011 – 31 March 2012)

I. Programme Highlights

The key highlights from the fourth quarter of 2011/12 were:

- Sub-Surface Railway upgrade - Edgware Road signalling modifications for S7 fleet.
- Sub-Surface Railway upgrade - Infrastructure ready for integration testing OS5 (Baker Street to Aldgate), OS8 (Paddington to Baker Street) and OS9 (Paddington to Hammersmith).
- Sub-Surface Railway major power works – Metropolitan line power capacity to support full S8 fleet in service.
- Victoria Line Upgrade – delivery of increased passenger capability complete.
- Track Renewal Programme - Deep Tube class 1 renewal (expected track form life of 40 years), 1,133m achieved
- Thameslink – LU Blackfriars station successfully re-opened and brought into operation.
- Tube Lines – nine escalators completed and returned to service.
- Tube Lines – Finsbury Park station delivered into service.
- Emirates Airline – the south tower was completed and the final phase of the guide cable pull completed.
- A406 Bounds Green – completion of main works.
- Blackwall Tunnel Northbound Refurbishment – completion of shaft 2.

Cover picture: The Emirates Airline and the first cable car crossing the Thames.

Construction of all three towers of the Emirates Air Line has been completed and a 1.1 km cable now stretches across the Thames. The three main towers will allow 34 cabins to cross the river at heights of up to 90 metres between the two terminals, Emirates Greenwich Peninsula and Emirates Royal Docks.

2. Projects (over £50m) and Programmes (over £10m per annum)

TfL's Investment Programme contains a range of programmes and projects over £50m, in addition to a multitude of smaller activities. These are delivered by TfL directly, through partners in the London boroughs, or through long-term partnerships with the private sector such as Private Finance Initiatives (PFI).

This main body of this report covers discrete projects with a total cost greater than £50m and programmes spending over £10m per annum. For each project, key milestones are listed with a forecast date compared against the March 2011 baseline. If appropriate, milestones listed as deliverables for the year in the 2011/12 Budget document are included.

Committed schemes and milestones listed in Annex B of the 2010 Spending Review funding settlement letter are included in this report. The milestones contained in Annex B are identified in the project pages with the note '(Annex B: date)' listed after the description.

Key to RAG status:

Status	Discrete Projects	Annualised Programmes
●	On time or early	100 per cent of target achieved
▲	Between 1 and 89 days late	>75 per cent of target achieved
■	Greater than 90 days late	<75 per cent of target achieved

This report focuses on the delivery of investment projects. For discussion on wider financial performance, see the Quarter 4 Operational and Financial Report.

The estimated final cost (EFC) of some of the projects is not included (marked as *) for reasons of commercial confidentiality.

London Underground

Sub-Surface Railway Upgrade

Spend to end Q4 2011/12 £m	EFC £m
1,890.5	4,149.4

Programme level	Current Plan Date	Actual/Forecast Date	RAG
Metropolitan line enabled for use by S8 stock	31/03/2011	23/05/2011	Completed
All Met line assets handed over to Maintenance (excl depots, sidings and power)	31/12/2010	31/12/2011	Completed
Roll out of new air-conditioned trains on Met line complete (Annex B:2013)	31/12/2013	31/12/2013	●
Roll out of new air-conditioned trains on Circle and H&C lines complete (Annex B:2014)	31/12/2014	31/12/2014	●
Roll out of new air-conditioned trains on District lines complete (Annex B:2016)	31/12/2016	31/12/2016	●
Full signalling upgrade across the SSR network complete (Annex B:2018)	31/12/2018	31/12/2018	●
SSR upgrade complete delivering 33 per cent capacity increase (Annex B:2018)	31/12/2018	31/12/2018	●
Rolling Stock	Current Plan Date	Actual/Forecast Date	RAG
Trains - 42 S8 trains available for passenger service	31/03/2012	05/05/2012	Completed
Automatic Train Control (ATC)	Current Plan Date	Actual/Forecast Date	RAG
Complete Service Control Centre building	23/07/2011	23/07/2011	Completed
ATC – Service Control Centre building available for ATC contractor	12/11/2011	15/10/2011	Completed
ATC - Programme baseline complete	12/11/2011	07/10/2011	Completed
ATC - Concept design approved (Gate A)	12/11/2011	05/08/2011	Completed
ATC - Old Dalby test track and S8 train available	10/12/2011	26/09/2011	Completed

London Underground

ATC - Completion of end state track layout	31/12/2018	31/12/2018	●
Depots	Current Plan Date	Actual/Forecast Date	RAG
Neasden: New lifting and maintenance facility piling complete	17/09/2011	06/09/2011	Completed
Neasden: Signalling main commissioning complete	15/10/2011	15/10/2011	Completed
Ealing Common and Upminster Depots - Approval to issue design and build contracts	12/11/2011	08/11/2011	Completed
Ability to lift S stock trains in the new Lifting Maintenance Facility at Neasden Depot	31/03/2013	31/03/2013	●
Infrastructure	Current Plan Date	Actual/Forecast Date	RAG
Infrastructure ready for route clearance – Edgware Road – Notting Hill Gate	25/06/2011	15/06/2011	Completed
Infrastructure ready for route clearance - Paddington – Hammersmith	25/06/2011	15/06/2011	Completed
Infrastructure ready for route clearance - Baker Street- Aldgate	23/07/2011	20/05/2011	Completed
Hammersmith Depot - phase C1.3 to support timetable and stabling requirements	20/08/2011	09/07/2011	Completed
Hammersmith Depot - phase C1.4 to support timetable and stabling requirements	11/12/2011	08/12/2011	Completed
Infrastructure ready for route clearance - Whitechapel – Barking	20/08/2011	20/08/2011	Completed
Edgware Road signalling modifications for S7 complete	04/02/2012	31/01/2012	Completed
Infrastructure ready for integration testing OS5 (Baker St to Aldgate)	03/03/2012	16/02/2012	Completed
Infrastructure ready for integration testing OS8 Part 1 (Paddington to Baker St)	03/03/2012	26/02/2012	Completed
Infrastructure ready for integration testing OS9 (Paddington to Hammersmith)	31/03/2012	22/03/2012	Completed

London Underground

The Sub-Surface Railway network (consisting of the Circle, District, Hammersmith & City and Metropolitan lines) upgrade will provide new air-conditioned rolling stock, signalling, upgraded stations to allow longer trains and a new control centre, to increase capacity and reduce journey times. The programme is scheduled to complete by 2018.

The programme is on budget and on schedule to achieve its planned delivery date. One or two minor issues have affected interim milestones, but the programme remains on course to deliver its DfT delivery milestones on time.

The programme is structured around the following four delivery areas:

Rolling Stock

44 new S stock trains have been delivered to London of which 35 have been made available for service along the full length of the Metropolitan line and currently account for than half of the line's fleet. The remainder of the trains accepted for service are providing training, maintenance and repair cover. Three further trains are being used for infrastructure testing. Post quarter 4, 42 S8 trains for passenger service were made available on 5 May. A review of the programme for the completion of the Annex B milestone for the Metropolitan line is underway and an earlier completion date is expected.

Operational use has uncovered a number of minor reliability issues that require modification of the trains. Several of these modifications were implemented during the quarter and the reliability performance figure has doubled as a result. Additional improvements are planned that will see a further doubling of reliability by the time of the Games.

In the quarter, the last of the new Metropolitan line trains entered production at Bombardier Trains, the supplier. The first of the new trains for the other Sub-surface lines also entered production this quarter and will be provided for use on the Hammersmith & City line in July 2012.

Automatic Train Control (ATC)

All projects required to deliver LU obligations to the ATC contractor are under way and are being completed in accordance with the required timescales.

The upgrade programme is working collaboratively with the supplier of the ATC system (Bombardier) to ensure there is a shared understanding of the principles associated with the design and operation of their signalling system, and to agree and accept a programme for delivery of the system.

The building for the new control centre at Hammersmith has been made available to the signalling supply contractor, who has spent the quarter fitting it out with communications systems.

Planning consents are now in place to develop the test site at Old Dalby. This facility allows trains and systems to be tested prior to implementing them on the operational railway and thereby proving the reliability of the systems so that customers are not inconvenienced by failures associated with untested systems. The cabling at this site is now complete in preparation for testing the ATC system and an application for a Safety Case certificate is being planned.

London Underground

Depots

Development of Neasden depot is being implemented to accommodate the new train stock. The delivery of this work is through three major works contracts: civil engineering (delivered by BAM Nuttall), power (delivered by Balfour Beatty) and signalling (delivered by Thales).

Early works have started on a new train lifting facility at Neasden depot that will make maintenance of new trains easier and quicker as it will lift the whole train together without the need to separate the carriages. During the next three months, the steel framework and cladding will be completed for this building and fit-out will commence.

At Upminster and Ealing depots, design work has been completed for the stabling of new S7 trains (5 berths) ready for the start of enabling works to commence during quarter 1 2012/13.

Preparation of the ground and installation of drainage facilities will be completed at Upminster as a start to upgrading the North sidings.

Infrastructure

Significant progress was made in the quarter to complete the infrastructure works and undertake integration testing necessary to operate a preview service, running the new train on the Hammersmith & City line in time for the Games.

Major track remodelling works are taking place at Hammersmith including the lengthening of track and movement of points and signals to accommodate the longer S stock. All planned works were completed (post quarter) during a partial closure of Hammersmith over the Easter weekend.

All legacy track circuits must be treated such that they are not susceptible to electrical interference (Electro-Magnetic Compatibility) from the new trains, in a process known as "immunisation." In the quarter, work was completed at Acton Town, Parsons Green and Canon Street.

Major signalling modifications were completed early in this quarter at Edgware Road. One of the most complex signalling projects in the history of LU, it marked a significant milestone in the delivery of the SSR Upgrade Programme and was a commissioned ahead of schedule.

A total of 67 kilometres of 'low loss' conductor rail has been installed to date representing 93% of the planned replacement work. This will provide the additional power required for the future high volume service without the need for further, more expensive sub-stations. This quarter, work was completed between Baker Street to Farringdon, Olympia and Earls Court to Putney.

London Underground

SSR Major Power Works (Signalling)

Spend to end Q4 2011/12 £m	EFC £m
3.6	48.1

This project will provide the main power supplies for the Sub-Surface Railway signalling (local distribution of signalling power is covered elsewhere).

Good progress has been made on early minor works. The Corporate Gate C for first major package of works was successfully passed and the ITT issued in March 2012.

SSR Major Power Works (Traction)

Spend to end Q4 2011/12 £m	EFC £m
251.8	521.4

Milestones	Current Plan Date	Actual/Forecast Date	RAG
SSR Power Upgrade work package 4 - delivery of switchgear to site Edgware Road	20/08/2011	31/07/2011	Completed
Package 1 - Hammersmith Depot power capacity to commence stabling available	01/11/2011	07/01/2012	Completed
Power to support 53 S8 and three S7C trains in service available	25/01/2012	04/11/2011	Completed
SSR Power Upgrade work package 2 - first sub-station in beneficial use	04/02/2012	02/12/2011	Completed
Package 1 - Metropolitan line power capacity to support full S8 train fleet in service available	29/02/2012	03/02/2012	Completed
SSR Power Upgrade work package 1 - all Metropolitan line sub-stations required to support the introduction of S8 trains in beneficial use	31/03/2012	03/02/2012	Completed
SSR Power Upgrade package 6- 132kv feed from St John's Wood to Lisson Street, completion of excavation	31/03/2012	09/12/2011	Completed
SSR Power Upgrade work - package 3 contract award	31/03/2012	28/03/2012	Completed
SSR Power Upgrade – programme close	15/06/2018	15/06/2018	●

London Underground

The power system upgrade programme will deliver the additional power capacity that is required to support the line upgrades.

The power supply capacity is in place to support the entire S8 train fleet in operation in pre-Automatic Train Control (ATC) mode on the Metropolitan Line. Works continue to upgrade the capacity on the Metropolitan line to meet post-ATC loads, and to upgrade capacity on the Circle and Hammersmith lines.

Good progress was made on the new power intake from the National Grid, although, as previously reported, the associated cabling will not be fully completed until after the Games. There is still a good margin of time between availability of increased capacity and when it is required.

The contract to upgrade supplies on the eastern part of the District Line was let on 29 March 2012, and tendering for further works on the Circle Line and the west of the District Line is about to commence.

London Underground

Victoria Line Upgrade Programme

Spend to end Q4 2011/12 £m	EFC £m
981.8	1,028.2

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Start to control Victoria line operations from the new service control centre	20/08/2011	19/04/2011	Completed
40 production trains accepted for service	20/08/2011	26/06/2011	Completed
Asset replacement migration start	20/08/2011	27/05/2011	Completed
Full service 09TS operational under DTG-R and new Service Control Centre	15/10/2011	25/09/2011	Completed
All production trains accepted for service	07/01/2012	22/12/2011	Completed
Asset replacement migration stages complete	03/03/2012	02/04/2012	●
Delivery of line upgrade capability	26/04/2012	02/04/2012	●
Victoria line upgrade programme completion (Annex B:2013)	07/04/2013	07/04/2013	●

The Victoria line upgrade is a “total” line upgrade including new rolling stock, signalling, control equipment, depots, platform/track information and track works. The programme remains below authority and on target to complete ahead of the contractual completion date of August 2013. System reliability, including mitigating the effect of passenger interactions, remains the primary focus.

All 47 of the new trains have now been accepted for service. This milestone was successfully achieved ahead of target in December 2011.

The fifth and sixth of seven asset replacement stages where old signalling and other assets are replaced with new equipment, were completed successfully with minimal subsequent reliability issues. This was largely the result of the continued close working between LU and the supply chain and expedient implementation of lessons learnt across all aspects of the commissioning programme. Completion of asset replacement is now the major area of delivery for the programme, prior to close out.

Post quarter 4, completion of the Asset Replacement programme was successfully achieved on 2 April. This has enabled the Victoria Line Upgrade team to realise its promise to deliver the increased passenger capability on the Victoria Line in advance of the Games. The 30 trains per hour timetable was subsequently introduced as planned on 22 April. Full realisation of the benefits with the introduction of the 33 trains per hour timetable is planned for Jan 2013, ahead of the DfT agreed target.

London Underground

The VLU project team, through Project ATLAS (focusing on prioritisation and resolution of Victoria line reliability issues as part of the LU network-wide Games readiness and reliability initiative and asset improvement work streams) has continued to achieve significant improvements in system reliability. Primary work streams include modifications to the '09 tube stock doors, which have commenced with the rubber door edge modifications, the implementation of limited push back to enable passengers to free themselves if they become trapped inside the cars and selective reopening of the doors triggered with a sensitive edge alarm.

Passenger Emergency Alarm modifications were completed and have yielded a decrease in accidental and malicious use.

Further modifications to assets are planned in order to continue to grow system reliability on the Victoria Line.

Underground General Renewals

Spend to end Q4 2011/12 £m	EFC £m
85.8	310.3

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Central line train refresh – start on site	23/07/2011	17/05/2011	Completed
Tunnel Cleaning Train - concept approval for Tunnel Cleaning Train	12/11/2011	17/10/2011	Completed
Tranche 2 - Depot security enhancement (Central line) - contract award (Triangle and Parsons Green)	08/11/2011	08/11/2011	Completed

This is a portfolio of projects to upgrade and improve rolling stock, signalling systems and other train system assets that are not covered by the line upgrades.

92 Tube Stock Refresh

The 92 tube stock refresh project has completed 70 trains and 55 cab ends as planned.

Battery Loco Life Extension

The completion of the 2nd Battery Loco was achieved on target in the quarter.

New Tunnel Cleaning Train

The new Tunnel Cleaning Train motor power unit contract was awarded and the work has commenced. Additional funding for the project was approved, due to increased technical scope and depot enabling works. Progress is proceeding to plan.

Automatic Track Monitoring System - ATMS

Good progress has been made this quarter with agreement by the supply chain to expedite delivery of hardware. LU is supporting initiatives by fast tracking product assurance.

London Underground

Victoria Station Upgrade

Spend to end Q4 2011/12 £m	EFC £m
162.1	589.4

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Primary traffic management stage 1 commences (Allington Street East link closed)	23/07/2011	03/05/2011	Completed
Elliott House demolition starts	20/08/2011	16/05/2011	Completed
Commence widening of Network Rail to LUL ticket hall stairs (Sussex stairs)	31/03/2012	23/11/2011	Completed
Commence south ticket hall main works	12/11/2012	17/09/2012	●
Complete north ticket hall piling	06/12/2013	11/10/2013	●
Ground treatment complete	11/11/2014	19/08/2014	●
Hand-back north ticket hall worksites to Land Securities	23/10/2016	29/07/2016	●
Delivery into service (Annex B: 2018)	04/06/2018	12/02/2018	●

The Victoria Station Upgrade project will deliver:

- a new underground north ticket hall at the junction of Bressenden Place and Victoria Street, with an entrance at street level
- a capacity increase in the existing Victoria line ticket hall (south ticket hall)
- nine new escalators
- a new interchange tunnel connecting the two ticket halls
- new lifts providing step-free access between street, ticket hall and Victoria line platform levels
- new lifts providing interchange between the Victoria line and District and Circle lines platforms
- improved access and new lifts between the National Rail and Underground stations

The project remains on schedule and within authority. The demolition of 124 Victoria Street is complete, and the new party wall has been constructed. Jet grouting has commenced at both Vauxhall Bridge Road and Allington Street and is progressing to plan. Northern ticket hall piling has been delayed due to obstructions in the ground, but a mitigation plan to recover this minor delay has been developed.

Traffic disruption in the roads around the project has been a challenge. Significant additional resources (both LU and Main Contractor) have been employed to ensure that traffic flow is maintained.

London Underground

Green Park Station Upgrade

Spend to end Q4 2011/12 £m	EFC £m
48.7	48.4

Milestones	Current Plan Date	Actual/Forecast Date	RAG
On-site station staff training commences (Train020)	21/05/2011	19/05/2011	Completed
Bring into use step-free access works	12/11/2011	29/08/2011	Completed
Site works complete - south demobilisation completed	31/03/2012	16/01/2012	Completed
Finish on site snagging complete	22/05/2012	01/06/2012	▲

This project provides step-free access at Green Park station, providing a key interchange for mobility impaired passengers travelling to 2012 Games events using the Underground.

The project has been delivered ahead of schedule and below budget. The step-free access (SFA) scheme was delivered into service on 29 August 2011. The Westminster passage has now opened and all landscaping is complete. Ventilation systems have been commissioned. Only minor items of snagging remain outstanding due to newly authorised station cooling works taking priority over the snagging. A minor over-accrual on Tube lines works, which has caused the committed expenditure to exceed EFC, will be revised next period.

London Underground

Paddington Station Upgrade

Spend to end Q4 2011/12 £m	EFC £m
33.4	*

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Issue Invitation to Tender for final fit-out	17/09/2011	08/08/2011	Completed
Gateline installed	03/03/2012	02/03/2012	Completed
LU Start on site – station fit-out final scheme	28/05/2012	30/04/2012	●
Final fit-out brought into use (practical completion)	28/05/2013	29/01/2014	■
Acceptance of mandatory asset information deliverables by LU	06/08/2013	03/04/2014	■
LU fit-out work complete (Annex B:2014)	01/11/2014	28/03/2014	●

Paddington (Hammersmith & City line) station is one of LU's top priorities for congestion relief because of demand growth associated with local area redevelopment and the Sub-Surface Railway upgrade. The project will provide:

- New ticket hall
- Significantly enlarged passenger concourse with three staircases to platform level
- Provision of new step free access from street to platform level (H&C platforms)

The Crossrail taxi ramp was opened on 13 February. The gateline was installed on plan. Installation of the permanent canopy and removal of the temporary canopy is progressing. The installation of the glass facade has commenced.

A clearer view of the delay to Crossrail's main works package and subsequent delay to the commencement of the fit-out works and project end date has now emerged. A detailed review of delivery programmes indicates that the likely date for completion of LU fit-out works is currently the end of March 2014.

LU are seeking to mitigate this delay by executing the final fit out via a construction management (rather than a prime contractor route) and to work in parallel with ongoing Crossrail construction activities.

The forecast date remains ahead of the DfT Milestone target date as the DfT Milestone reflects the previous strategy of delivering the station via an interim scheme.

London Underground

Tottenham Court Road Station Upgrade

Spend to end Q4 2011/12 £m	EFC £m
231.1	482.3

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Commence Northern line platforms and passageways closure	23/07/2011	02/04/2011	Completed
Complete construction of diaphragm walling for Goslett Yard main box	20/08/2011	06/05/2011	Completed
Completion of jacking works to Escalator 3	12/11/2011	30/06/2011	Completed
Completion of Goslett Yard box	30/09/2013	01/11/2013	▲
Completion of phase 1 (partial opening of the new plaza ticket hall)	31/03/2015	03/01/2015	●
Completion of the project (Annex B:2016)	31/12/2016	29/12/2016	●

The project will provide:

- A new ticket hall (six times larger than the existing)
- Three new escalators serving the Northern line
- Improved access from street to ticket hall and from ticket hall to platform level (five new lifts)
- Provision for new public square at St. Giles Circus
- LU are also undertaking a significant portion of the structural works for the new Crossrail station

The Goslett Yard roof slab has been cast and traffic has been diverted over the Goslett Yard and Northern Line escalator boxes. A slight delay to the Goslett Yard Box completion milestone due to changes to the diaphragm wall design, although the project remains on schedule and within authority.

Work to the Central line over bridges and the Northern line lower concourse levels are progressing to plan.

London Underground

Bond Street Station Upgrade

Spend to end Q4 2011/12 £m	EFC £m
118.5	285.0

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Contract access milestone Escalators 1 and 2	20/08/2011	03/06/2011	Completed
Start structural demolition	04/02/2012	12/10/2011	Completed
Complete Oxford Street water main diversion works	04/02/2012	05/05/2012	●
All demolition works complete	25/09/2012	27/11/2012	▲
Start of main tunnelling operations (Annex B: 2013)	15/07/2013	11/07/2013	●
Tunnelling set up decommissioned	28/09/2015	07/09/2015	●
Practical completion (Annex B: 2017)	28/04/2017	03/03/2017	●

Bond Street station is a key interchange between the Jubilee and Central lines. Long term demand and congestion are forecast to increase further as a result of growth in employment and leisure travel and the completion of Crossrail in 2018. The scheme provides:

- two additional escalators from the interchange level to the Jubilee line
- a low-level interchange route between the Central and Jubilee lines
- a new step-free entrance and ticket hall on Marylebone Lane
- four new lifts, allowing step-free access to both Central and Jubilee line platforms, interchange and street levels
- Step-free route to Crossrail

The project remains on schedule and within budget. Demolition of 354-358 Oxford Street is now down to the ground floor and at 2 Stratford place the ground transfer slab has been cast (ahead of plan). The acquisition costs for 354-358 Oxford Street are in the process of being finalised. Utility works in Oxford Street have been delayed due to the need for Thames Water to repair damage to a 30" cast iron water main. Post quarter 4, Oxford Street re-opened to traffic, with all water main works completed and the road re-surfaced, on Saturday 5 May.

The below ground demolition methodology has changed to minimise the risk of structural damage to the adjacent Tanzanian embassy. The methodology now includes filling the substructure with foam concrete and sequential bracing and re-excavation to minimise 'heave'. This impacts the programme for subsequent activities but not the project end date.

London Underground

Bank Walbrook Square

Spend to end Q4 2011/12 £m	EFC £m
13.6	*

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Design concept approved	30/04/2011	04/04/2011	Completed
Delivery into service (Annex B: 2015)	31/12/2015	23/12/2015	●

The Bank Walbrook Square project will provide easier access to streets south and south-west of the station, reduce congestion on the Waterloo & City line platforms, and provide step-free access to the Waterloo & City line. LU is making a fixed contribution to the funding of the construction of the station box shell, which will be delivered by the developer (Bloomberg). LU will fit out the station box to complete the new entrance. The project schedule is dependent on the developer.

The target date for a revised development agreement has now slipped to early June as a result of issues around Bloomberg's supplementary planning application. Bloomberg are working with LU infrastructure protection to agree licence and indemnity requirements in connection with exploratory boreholes and main works piling, which is expected to commence in June 2012. The station control room tender has been awarded.

Bank Station Upgrade

Spend to end Q4 2011/12 £m	EFC £m
12.2	*

Milestones	Current Plan Date	Actual/Forecast Date	RAG
RIBA stage D general arrangement scheme layout freeze	04/02/2012	12/12/2011	Completed
RIBA D design accepted - phase complete	04/10/2012	17/07/2012	●
Transport Works Act Order - grant of powers	12/11/2014	31/12/2015	■
Start on site	21/07/2015	04/01/2016	■
Ticket hall delivery into service	14/09/2021	25/08/2021	●
Beneficial use (Annex B: 2021)	31/12/2021	31/12/2021	●

The Bank Northern line congestion relief project will relieve current and expected congestion at Bank station by having a new southbound running tunnel and platform with the existing platform utilised as a concourse area. By mitigating increasingly frequent congestion of the Northern line/DLR area, station closures will be reduced.

London Underground

Engineering investigations for third party infrastructure including St. Mary's church and Thames Water sewers are ongoing.

The Innovative Contractor Engagement procurement route (ICE) seeks to promote innovation, reduce costs and secure the project end date. This change to the project delivery strategy results in a number of changes to milestone delivery dates, including TWAO and start on site, but secures the 2021 project completion date.

Station Condition Renewal

Spend to end Q4 2011/12 £m	EFC £m
402.2	748.5

This comprises projects primarily to keep stations fit for purpose. It also includes minor station upgrades, some of which are third party funded works and budgetary provisions for future station capacity schemes. Planned funding for Finsbury Park, Highbury & Islington and Vauxhall stations, along with a general provision for congestion relief schemes, are included in this programme.

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Notting Hill Gate station modernisation – Project Management Framework (PMF) Stage 5 gate review	05/05/2011	05/05/2011	Completed
Marble Arch station modernisation - PMF Stage 5 gate review	17/07/2011	14/07/2011	Completed
Heathrow Terminals 1, 2, 3 Step Free Access - complete all works in line with T5 agreement	05/02/2012	27/07/2012	■
Highbury & Islington Event Mitigation Project - start on site	07/05/2012	15/09/2011	Completed
Highbury & Islington Event Mitigation Project - beneficial use practical completion	15/11/2012	08/05/2012	●
Highbury & Islington Event Mitigation Project - finish on site (snagging complete)	06/12/2012	Milestone removed	
Highbury & Islington Event Mitigation Project - mandatory asset information deliverables accepted by LU	03/01/2013	Milestone removed	
Former Silverlink Stations Upgrade - project close out	21/12/2012	21/12/2012	●

London Underground

At Cannon Street station, the water ingress remedial works have been completed.

For the Highbury & Islington Event Mitigation Project – two milestones have been removed as part of the annual schedule review for key London Underground milestones and consolidated into one key milestone. The programme remains on target to achieve beneficial use.

At Heathrow T123, the lift was brought into passenger use on 17 February. Following recent slippages the programme has stabilised. Permission has been obtained to work on the refurbishment of the former British Transport Police offices (back of house) up to and around the Games period. All front of house works are to be completed before the Games.

Following the acceleration of cooling works to enable some of the Victoria line stations to have platform cooling in readiness for the Games, 14 of the 22 platform air handling units have now been successfully installed at Green Park and Oxford Circus. The project remains on plan to bring cooling into use at both stations before the Games.

London Underground

Cooling the Tube Programme

Spend to end Q4 2011/12 £m	EFC £m
169.1	184.2

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Mid-tunnel vents tranche 3 - all fans and associated equipment available	06/07/2011	20/04/2011	Completed
Out-of-service fans - phase 4 Clapham sub-station/Weston Rise - approved detailed design	25/07/2011	10/08/2011	Completed
Tranche 2 - All Victoria line mid-tunnel vents sites handed over to maintenance	20/08/2011	28/06/2011	Completed
Out-of-service fans - phase 4 - first start on site	19/01/2012	19/01/2012	Completed
All Victoria line tranche 3 mid-tunnel vents sites beneficial use	04/02/2012	11/10/2011	Completed
Out-of-service fans - phase 4 - all fans available for beneficial use	10/11/2012	02/10/2012	●
Strategic programme management – stage gate 6 review meeting	16/03/2018	16/03/2018	●

This is a long-term programme to control ambient temperatures on the Underground to stop them increasing as the train service increases. Without intervention, temperatures will rise as more energy is dissipated within the tunnels due to increased train service capability delivered by the deep-tube line upgrades.

Work to upgrade ventilation capacity on the Victoria line is now complete, with the exception of minor enhancements to remote control facilities. Temperature measurements confirm that the combination of ventilation, regenerative braking and other measures on the Victoria Line is controlling temperatures effectively against the background of increasing services.

The scope of the Victoria line stations platform cooling has been transferred to the Stations programme to enable some cooling benefits in readiness for the Games.

Work on the restoration of two long-disused fans on the Northern line has progressed well and it is expected that both will be working before the Games.

London Underground

Crossrail and Third Parties

Spend to end Q4 2011/12 £m	EFC £m
144.3	251.5

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Barbican interlocking machine room - deliver into service	22/05/2011	22/01/2011	Completed
CER Equipment ready for installation into new location at Liverpool Street to be provided by CRL	25/06/2011	25/04/2011	Completed
Complete LU enabling works for shield removal at Blackfriars	25/06/2011	13/04/2011	Completed
Support Hertfordshire County Council in the submission of its best and final bid to DfT for Croxley Rail Link	30/09/2011	16/08/2011	Completed
Support Hertfordshire County Council in the submission of its TWAO for Croxley Rail Link	26/11/2011	16/08/2011	Completed
LU acceptance of Staged Design Compliance Certificate for Whitechapel main station fit out prior to contract award	31/12/2011	Milestone removed	
LU acceptance of Staged Design Compliance Certificate for Liverpool Street main station fit out prior to contract award	31/01/2012	Milestone removed	
Submission of TWAO for Northern Line Extension (jointly with Treasury Holdings)	02/02/2012	Milestone removed	
LU support complete for Crossrail trial running stations (central section)	31/12/2018	31/12/2018	●

The Crossrail project provides LU support and infrastructure protection to the Crossrail Programme delivered by Crossrail Limited (CRL). The majority of the expenditure is reimbursed by CRL.

LU has agreed to Crossrail's technical assurance plan, which covers the main construction and handover activities, and has approved the commencement of tunnelling at Royal Oak Portal. Crossrail have now produced a plan to close out the outstanding design issues relating to the main station fit-out contracts.

London Underground

For the two Staged Design Compliance Certificate milestones LU and Crossrail are working jointly to resolve all outstanding issues. As a consequence these milestones are no longer valid and hence have been removed.

Croxley Rail link hearing into the closure of the section of the line to Watford Metropolitan line station planned for 14 June 2012, with statement of case and responses to objections to be submitted by mid May.

Northern Line Extension - new funding arrangements are being progressed by TfL due to a subsidiary of Treasury Holdings UK going into administration. Until a new developer is appointed, this milestone is no longer valid and hence has been removed.

London Underground

Track Renewal (BCV/SSR)

Spend to end Q4 2011/12 £m	EFC 2011/12 £m
93.5	93.5

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Ballasted track replacement and re-ballast metres - 9,976m achieved	02/10/2011	27/02/2012	Completed
Points and Crossings - 14 units achieved	02/10/2011	05/09/2011	Completed
Track drainage - 5,369m replaced	02/10/2011	13/02/2012	Completed
Deep Tube class 1 renewal (expected track form life of 40 years) - 1,268m achieved	02/10/2011	01/10/2011	Completed
Ballasted track replacement and re-ballast metres - 15,456m achieved	31/03/2012	24/11/2012	■
Points and Crossings - 18 units achieved	31/03/2012	19/05/2012	▲
Track drainage - 8,874m replaced	31/03/2012	07/07/2012	■
Deep Tube class 1 renewal (expected track form life of 40 years) - 2,457m achieved	31/03/2012	09/02/2012	Completed

Following the Ballasted Track Renewal (BTR) overrun in October, the Track possession works were suspended and a recovery plan was scoped. The track recovery plan has now been implemented. Resumption in the quarter resulted in 2,200m of BTR being achieved, which was under plan due to the loss of two weekend possessions in January 2012.

Track team achieved in the quarter:

- 1,500m of track drainage (a shortfall of 900m against the programme due to adverse weather conditions experienced in the first two weeks of February 2012).
- 1,133m of Deep Tube Renewals (DTR).
- 11,130m of Extra Low Loss Composite Conductor Rails (ELLCCR) with the removal of 7,548m of scrap rail from various sites across the LU network in line with the plan.
- Whitechapel Stage Gate 7b - commissioning for the 'Crossrail Enabling Works' project.

London Underground

Civils (BCV/SSR)

Spend to end Q4 2011/12 £m	EFC to 2011/12 £m
19.1	19.1

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Chiswick Park to Acton Town - practical completion	25/06/2011	24/06/2011	Completed
Chiswick Park to Turnham Green - practical completion	20/08/2011	18/07/2011	Completed
Chalfont & Latimer to Amersham embankments 10, 11 & 12- practical completion	17/09/2011	24/08/2011	Completed
Civils Pumps Programme 2011 to 2013 - start on site – first of five internal work sites (West Ruislip)	11/10/2011	25/08/2011	Completed
Amersham to Chalfont and Latimer embankments 1, 2 & 3 - practical completion	28/11/2011	14/11/2011	Completed
Civils Pumps Programme 2011 to 2013 - six station pump renewals completed	30/11/2011	30/11/2011	Completed
Civils Pumps Programme 2011 to 2013 - practical completion - last of eight sites	07/11/2012	17/08/2012	●

The Civils programme is on plan and below budget with all milestones set for 2011/12 completed. The last milestone in the table above is for next year and is ahead of programme, following good progress by the contractors in the quarter and rescheduling of the sites in the programme.

As planned in the quarter, works to repaint one of LU's largest bridges situated between Northwood and Northwood Hills on the Metropolitan line were completed. The brick tunnel immediately outside Baker Street station was also stabilised and an embankment at Ruislip Gardens was strengthened – the first project completed under the new framework contract. Other works to embankments and cuttings at Wimbledon Park, Woodford and Buckhurst Hill let in the previous quarter under the framework contract are due to finish early in the new reporting year. Embankment and cutting strengthening works also began on site at Chalfont & Latimer in the quarter.

London Underground

Thameslink

Spend to end Q4 2011/12 £m	EFC £m
35.2	47.1

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Thameslink Blackfriars OPO (one person operation) works start on site	11/10/2011	11/08/2011	Completed
Thameslink Farringdon - LU works complete including Connect and Prestige	06/01/2012	09/12/2011	Completed
Thameslink Blackfriars - LU ready to bring station back into operation	10/01/2012	19/02/2012	Completed
LU support complete for Thameslink key output 2 – 24 trains per hour (London Bridge)	31/12/2018	31/12/2018	●

This project provides LU support and infrastructure protection to the Thameslink programme delivered by Network Rail (NR). All of the expenditure is reimbursed by NR.

At Farringdon station, completion works continue (including external tenancies). Maintenance costings are in the process of being finalised.

Blackfriars station successfully re-opened on 19 February. Ongoing snagging works continue to allow for formal handover of assets later in the year.

London Underground

Deep Tube Programme

Spend to end Q4 2011/12 £m	EFC £m
2.6m	*

Milestones	Current Plan Date	Actual/Forecast Date	RAG
PMF Gate 1 outcome definition - DTP initial studies scope definition approved	12/12/2011	08/12/2011	Completed
Procurement strategy complete and agreed by LU Executive'	25/11/2011	22/11/2011	Completed
Completion of testing and trials strategy	22/11/2011	22/11/2011	Completed
DTP Strategic Objectives Defined (Outcome Definition)	17/04/2012	27/04/2012	▲
Delivery of prototype for a low energy, higher capacity train for Piccadilly and Bakerloo lines [subject to agreement on borrowing headroom] (Annex B: 2015)	31/12/2015	31/12/2015	●

The Deep Tube Programme will deliver new trains and railway control systems to the Bakerloo, Piccadilly, Waterloo & City and Central lines to replace life-expired assets, increase capacity, reduce journey times and minimise temperature impacts.

The third Scope Definition Review (SDR) has commenced and is expected to be completed by mid April (post quarter 4, this has been completed). An IIPAG review of the programme was held in February 2012 in support of the funding submission, which will be presented to the TfL Board on 27 June.

Tube Lines

Tube Lines Lifts and Escalators (L&E)

2011/12 Spend to end Q4 £m	EFC to 2011/12 £m
13.8	13.8

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Bounds Green E3 Refurbishment – Return to Service (BIU)	28/05/2011	03/05/2011	Completed
Leicester Square E3 Refurbishment – Return To Service (BIU)	28/05/2011	13/05/2011	Completed
North Greenwich E2 Refurbishment – Return To Service (BIU)	28/05/2011	13/05/2011	Completed
West Ham E1 Refurbishment – Return To Service (BIU)	25/06/2011	27/05/2011	Completed
Southwark E6 Refurbishment – Return To Service (BIU)	17/09/2011	12/08/2011	Completed
Leicester Square E2 Refurbishment – Return To Service (BIU)	15/10/2011	26/09/2011	Completed
West Ham E3 Refurbishment – Return To Service (BIU)	15/10/2011	04/10/2011	Completed
Stratford E1 Replacement – Return To Service (BIU)	12/11/2011	22/12/11	Completed
Stratford E2 Like For Like Refurbishment – Return To Service (BIU)	07/01/2012	22/12/11	Completed
Southwark E4 Refurbishment – Return To Service (BIU)	07/01/2012	19/12/2011	Completed
Leicester Square E1 Refurbishment – Return To Service (BIU)	03/03/2012	31/01/12	Completed
North Greenwich E8 Refurbishment – Return To Service (BIU)	03/03/2012	15/02/2012	Completed

The Lifts and Escalator programme completed 5 Lifts and 25 escalators within the year. During the quarter a total of nine escalators were completed and returned to service as planned including two for Stratford and two for London Bridge. A further three escalators also commenced site works.

In the next quarter, five escalators and two lifts (Canada Water and Bermondsey) are expected to be returned to service. Currently all are progressing to plan.

Tube Lines

Station Condition Renewal

2011/12 Spend to end Q4 £m	EFC to 2017/18 £m
6.2	16.7

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Finsbury Park – delivery into service	08/02/2011	08/02/2011	Completed
Heathrow T 1, 2 and 3 – delivery into service	20/12/2011	14/09/2012	■

Installation of platform humps at Euston was completed during a possession as were the installation works at West Finchley. At Green Park and Kings Cross the external design review has now been completed

The Heathrow Station Modernisation Enhancement Project (SMEP), has been realigned with the LU Heathrow T123 SFA project resulting in a new forecast completion date.

Tube Lines

Tube Lines Track

2011/12 Spend to end Q4 £m	EFC to 2011/12 £m
25.3	25.3

Milestones	Current Plan Date	Actual/Forecast Date	RAG
JNP Track replacement, install 1,500m	17/09/2011	17/09/2011	Completed
JNP Enhanced Track replacement, install 983m	17/09/2011	13/02/2012	Completed
JNP Tube reconditioning, complete 850m	10/12/2011	17/10/2011	Completed

Achievements

During the quarter the following works were completed:

- 939m of tube reconditioning
- 475 pit-block renewals
- 427m of re-ballasted track
- 263 sleepers replaced
- Wembley Park to Kingsbury Enhanced Track Replacement (ETR)

Following the overrun of track work on the Jubilee line, Tube Lines have suspended all ETR works pending a review to strengthen the team and the recovery of the works.

The tube reconditioning and life extension works continue with increased focus on safety and elimination of the over-run risk. While the track team is strengthened, in terms of capability and numbers, the programme of works pre-Olympics is limited to 13 concurrent sites (seven less than the original plans set at the start of 2012).

During the next quarter, works will commence for the ETR on the Northern Line (Golders Green to Brent Cross inclusive of three bridges), on Stockwell platform 3 (pit renewal), Morden to South Wimbledon (tube reconditioning) and Covent Garden Platform 2 (pit renewal).

Tube Lines

Tube Lines Civils

2011/12 Spend to end Q2 £m	EFC to 2011/182 £m
7.4	7.4

Milestones	Current Plan Date	Actual/Forecast Date	RAG
JNP Drainage renewal, complete 1,000m	17/09/2011	17/09/2011	Completed
JNP Drainage renewal, complete 2,400m	31/03/2012	30/03/12	Completed
JNP Earth structure renewal, complete 300m	17/09/2011	17/09/2011	Completed
JNP Earth structure renewal, complete 600m	31/03/2012	03/03/12	Completed

The 2011/12 Civils programme has progressed to plan with the following works achieved in the quarter:

- Completion of 1,417m of JNP drainage renewal.
- Completion of 228m of JNP earth structure remediation.

On the Bond Street to Baker Street Tunnel Remediation project, four ring strengthening works have been completed ahead of programme. Existing vent shafts and access areas have been identified for the tunnel invert strengthening works.

At the Canons Park to Queensbury earth structure project, new ramp access is to be installed and surveys for the ground investigation are to be completed in quarter 1.

Completion of the Covent Garden slab replacement project and issuance of two tenders for the bridge painting are also expected to be completed in quarter 1.

Tube Lines

Tube Lines Jubilee Line Upgrade Works

2011/12 Spend to end Q2 £m	EFC to 2017/18 £m
32.2	72.3

Milestones	Current Plan Date	Actual/Forecast Date	RAG
JLU – J5 section commissioned and revenue service started	15/04/2010	25/06/2011	Completed

The Jubilee line Working Timetable 12 was successfully implemented to programme on Monday 26 March, with 30 trains per hour being achieved during peak service times.

Reliability improved in the quarter with no transmission based train control (TBTC) delays for 13 days. However, there were a few incidents, such as point failures at North Greenwich, Metropolitan line train movement into Neasden Depot and a hardware failure. The issue of the Jubilee Line trains juddering is being mitigated via a software update to the controls systems to all ninety-eight units. Reliability improvements continue to progress with a dedicated single resource to coordinate all Jubilee Line reliability plans and the fibre optic data communications network was successfully re-established on the 2 April.

During the quarter the Battery Locos were tested under the TBTC signalling system and was proven to protect the four enabled Battery Locos. There are still a number of operating restrictions in place and further testing will be undertaken to remove them.

Modification of the relays continues in the quarter with Wembley Park, North Greenwich, Green Park, Waterloo and Willesden Green now complete and Stratford partly commissioned. Post quarter 4, the rollout has been completed.

Over the next quarter the training of the Service Control Centre staff and engineering vehicle operators will be progressed and testing continues for the other engineering vehicles in the fleet.

Tube Lines

Tube Lines Northern Line Upgrade Works

2011/12 Spend to end Q2 £m	EFC to 2017/18 £m
68.6	512.0

Milestones	Current Plan Date	Actual/Forecast Date	RAG
NL – Complete negotiations with Thales to enable placing of new Supplemental Agreement or Propose new strategy	30/04/2011	30/04/2011	Completed
NMA1 Ready for Revenue Service (High Barnet Branch)	15/10/13	23/11/12	●
NMA3 Ready for Revenue Service (Camden Junction Area)	30/6/14	20/09/13	●
Northern Line Upgrade complete, delivering 20% increase in capacity	31/12/14	31/12/14	●

*Note; Previous forecast dates have been based upon the pessimistic view of the programme. Following good progress and better understanding of the future requirements, the dates now reflect the contractor's programme.

High Barnet branch blockade was successfully completed over the weekend of 11/12 February with the installation of sighted assets, data communications testing and other works despite the adverse weather conditions.

The weekend closure on 3/4 March successfully commissioned the change over cubicles at Finchley Central which will accelerate the switchover to the new system to allow optimum testing during engineering hours.

Programme points at East Finchley and Highgate were successfully commissioned, enabling the system testing planned for next quarter. The installation programme is maintaining progress to support the next planned closure.

Plans are progressing to complete the Northern Migration Area 1 (NMA1)-(High Barnet to West Finchley) and NMA2 (Mill Hill East to Highgate) installation works in the next quarter. Ongoing performance and data communications testing will continue throughout the next quarter.

London Rail

New South London Line

Spend to end Q4 2011/12 £m	EFC £m
50.6	72.7

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Network Rail Work Package 2 track modifications	24/09/2011	21/09/2011	Completed
Commence permanent way construction	15/01/2012	22/11/2011	Completed
Commence passenger services	09/12/2012	09/12/2012	●

The new South London line (was known as the East London Line (ELL) Phase 2) will provide an additional four trains per hour on the core ELL. These trains will run to Clapham Junction via a new chord that leaves the ELL Phase 1 route to the south of Surrey Quays and joins the South London Line to the north of Queens Road (Peckham) to complete a rail orbital route on London Overground.

The principal signalling contractor commenced on site and a number of signalling installations have already been completed. Power installation works are progressing well in support of the system commissioning in June 2012. Progress has also continued during the quarter to complete the remaining civils works.

The delivery works on site at Old Kent Road are on programme, with commissioning of Old Kent Road junction and the NR signalling completed on 29 April 2012, as planned. Overall, the works are on schedule to support opening in line with NR timetable change in December 2012.

London Rail

Emirates Air Line

Spend to end Q4 2011/12 £m	EFC £m
46.3	62.6

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Award contract	30/04/2011	18/04/2011	Completed
Guide rope installation	10/03/2012	31/03/2012	Completed
Commence trial operations	Summer 2012	Summer 2012	●
Revenue operation commences	Summer 2012	Summer 2012	●

The cable car, now formally named Emirates Air Line, will stretch 1.1 km across the Thames between North Greenwich and Royal Victoria. The 34 gondola cabins will carry up to 2,500 people per hour.

Construction of the South Tower was completed this quarter which means all three towers are now in place. The final phase of the Guide Cable pull and tension works across the Thames completed successfully over the weekend of 31 March 2012 and the gondola cabins have been delivered as planned.

Fit out of the North and South Stations commenced in the quarter and works are progressing in the control rooms, with the roofing, lift installation and utilities.

Work still to be completed is the commissioning of the cable way system, the successful completion of testing and commissioning, the installation of the gateline and canopy, and the installation of the ship impact protection system.

Surface Transport

TLRN Capital Renewals Programme

The annual budget for the Transport for London Road Network (TLRN) Capital Renewals Programme is based on long-term asset investment modelling and an objective, risk-based assessment of the renewals required, delivering a safe and serviceable network.

Spend to end Q4 2011/12 £m	2011/12 EFC £m
61.1	61.1

Description of works	Units	2011/12 annual target	2011/12 Revised forecast output	2011/12 achieved
Area of carriageway resurfaced	m ²	470,000	625,000	749,009
Area of footways resurfaced	m ²	45,000	55,500	62,451
Number of lighting units replaced	No.	950	950	986

Capital Renewals is an annualised programme of schemes that maintain the physical infrastructure of the TLRN, including carriageways, footways, structures, tunnels, lighting, drainage, green estate and street furniture. The programme consists of schemes that lengthen the useful life of an asset, either by replacing it with a new one, or by some other intervention such as reconstruction or refurbishment.

Schemes are identified, prioritised and programmed (assigned to an appropriate year) using a risk-based approach. Typically, an additional ten per cent of schemes are identified to act as reserves. The reserves creates flexibility that caters for unplanned scheme deferrals, caused by factors such as severe winter weather, refusal of permits on congestion grounds and other events.

During the year, scope and budgets for the programme was brought forward from the 2012/13 allocation, resulting in the planned spend for the year rising from £49.5m to £62.1m. This enabled more work to be completed in advance of the Games. The resulting increases in the forecast outputs for the year are shown in the table above

The final position was an in-year expenditure of £61.1m, the variance of £1m being due to some works being deferred to 2012/13, and staff capitalisation being lower than forecast.

Carriageway resurfacing

By the end of Quarter 4, 749,009m² of carriageway was resurfaced against a forecast output of 625,000m² for the year. This was 20% over forecast due to additional scope (taken from next year) and improved value.

Footways resurfacing

By the end of Quarter 4, 62,451m² of footway was resurfaced against a forecast output of 55,000m² for the year. This was 13% over forecast.

Surface Transport

Lighting column replacements

By the end of Quarter 4, 986 lighting columns were replaced against a forecast output of 950 for the year to date. This was 4% over forecast.

Surface Transport

A406 Bounds Green

Spend to end Q4 2011/12 £m	EFC £m
50.9	54.1

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Completion of advance statutory works	19/04/2010	19/04/2010	Completed
Commence main works	31/05/2010	19/04/2010	Completed
Complete protection structure for LUL bridge	10/05/2011	21/03/2011	Completed
Wilmer Way junction opening	07/08/2011	15/06/2011	Completed
Completion of main works	05/06/2012	02/03/2012	Completed

The section of the A406 between Bounds Green Road and Green Lanes suffers from congestion and has a poor accident record. The project predominantly creates a two-lane dual carriageway with improved traffic flows at junctions, improved pedestrian crossing facilities, a dedicated cycleway, improved bus journey reliability, and improvements to the local street scene.

During the quarter, the completion of the main works was achieved on 2 March 2012.

Surface Transport

Blackwall Tunnel Northbound Refurbishment

Spend to end Q4 2011/12 £m	EFC £m
64.2	65.8

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Mobilisation Period complete	03/05/2010	03/05/2010	Completed
Shaft 2 complete	23/02/2011	16/02/2011	Completed
Construction complete	31/12/2012	08/12/2011	Completed

This project aims to bring the northbound tunnel to European best practice standards. Work includes: shaft alterations, ventilation upgrades, lighting, drainage, signage and public address system works and upgrades to the emergency points and fire detection and fighting systems. The project has been delivered during night time and occasional weekend possessions.

With the exception of the mobile phone coverage (which requires the network operators to install equipment), all systems have been brought into operation and tunnel works were completed ahead of schedule on 8 December 2011. The final night-time tunnel closure occurred on 10 November 2011. Communications, signalling, and CCTV systems have now been handed over to operations teams.

The Blackwall Tunnel forms a vital part of the Olympic Route Network and as part of the Games readiness preparations, a live exercise is planned to take place in May.

The project won the special award for re-engineering London at the New Civil Engineering London Awards in March 2012, and has been further shortlisted for the Construction News Awards in July 2012.

Surface Transport

Cycle Hire

Spend to end Q3 2011/12 £m	EFC £m
105.8	119.4

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Phase 1: systems integration end to end testing	28/07/2010	31/12/2010	Completed
Phase 1: on street construction completed	30/06/2011	28/07/2011	Completed
Phase 2: expansion sites identified	28/02/2011	28/02/2011	Completed
Phase 2: go live #4 – expansion area on street	02/03/2012	02/03/2012	Completed
Phase 2: construction complete	05/09/2012	30/04/2012	Completed

The Barclays Cycle Hire scheme launched successfully to registered members on 30 July 2010 and was opened up to all users on 3 December 2010. Around half of the scheme members have opted for annual membership, which means the scheme costs less than 12 pence per day, as the vast majority of trips are less than 30 minutes. This is a low-cost and convenient alternative for many travellers.

Barclays Cycle Hire has now expanded east of the city and to Westfield London in the west, with a public launch on the 8 March 2012. The construction of this expansion was completed on 30 April 2012 adding an additional 159 locations to the scheme. The complete and expanded scheme covers 65km² of the Capital with around 8,000 hire bikes now available from 561 locations across central and eastern London.

The design and development of an improved IT system with customer usability improvements is due for delivery in winter 2012.

Surface Transport

Ten Cycle Superhighways

Spend to end Q4 2011/12 £m	EFC £m
24.0	104.8

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Phase 1 detailed design completed	28/02/2011	25/02/2011	Completed
Phase 1 complete (two routes total)	17/06/2011	18/07/2011	Completed
Phase 2 complete (four routes total)	30/06/2013	15/12/2013	■
Phase 3 complete (six routes total)	30/09/2013	30/11/2014	■
Phase 4 complete (eight routes total)	30/04/2014	30/06/2015	■
Phase 5 complete (ten routes total)	30/01/2015	30/12/2015	■

The Ten Cycle Superhighways scheme will deliver a further ten radial routes into central London following the pilot project. The ten routes will be delivered in five phases of two routes from June 2011. The last route is expected to be delivered by December 2015.

In November 2011, the Mayor instructed TfL to review junction designs for all live Cycle Superhighway routes. The full impact of the review on the cost and duration of the programme has yet to be established and work is on hold; the programme will re-mobilise in May 2012, with the milestones indicated above subject to change following consultation with the GLA.

Surface Transport

Split Cycle Offset Optimisation Technique (SCOOT)

Spend to end Q4 2011/12 £m	EFC £m
13.0	19.1

Milestones	Current Plan Date	Actual/Forecast Date	RAG
634 sites installed	31/03/2011	04/03/2011	Completed
885 sites installed	31/03/2012	30/05/2012	▲
1,000 sites installed (Annex B: 2015)	31/03/2013	31/03/2013	●

The SCOOT programme will upgrade traffic signal technology to help meet the Mayoral objective of smoothing traffic flow. Costs shown are for the New SCOOT Investment project, which will deliver 528 sites of a planned 1,000 sites. The remaining sites are funded and delivered by business-as-usual activities across Surface Transport.

Under the New SCOOT Investment project, 240 sites were planned to be installed in the 2011/12 financial year, bringing the total to 413 sites of the 528 the project will contribute towards the planned 1,000 total.

During the quarter, detailed design work was completed at all 240 sites. The installation of detection loops has now been completed at 235 sites to date, with work in progress at 3 sites and a further 2 sites due to be commenced. In total, 176 sites are now fully commissioned and operational. The remaining sites are forecast to be installed by 30 May 2012.

Surface Transport

Hammersmith Flyover

Spend to end Q4 2011/12 £m	EFC £m
8.4	56.3

Milestones	Current Plan Date	Actual/Forecast Date	RAG
Installation of strengthening measures at critical piers	30/06/2012	30/06/2012	●

The Hammersmith Flyover project is part of a programme of eight specific road bridges, tunnels and structures on the Transport for London Road Network (TLRN) that have been identified as requiring capital investment in order to improve road network safety, improve network resilience and stability, and reduce the whole-life costs of specific assets through early intervention.

Due to the poor condition of Hammersmith Flyover, and immediate risks to the safety of the structure, measures to support load-bearing capacity prior to the Games have already commenced. The first phase of works, treating the parts of the structure that have suffered the worst deterioration, began in January 2012 and is scheduled to complete in June 2012.

The second phase of works, the development and installation of a long-term strengthening solution, is currently in the early planning stage.

ITSO (Integrated Transport Smartcard Organisation)

Spend to end Q4 2011/12 £m	EFC £m
51.5	66.3

Programme level	Current Plan Date	Actual/Forecast Date	RAG
Head office processing system operational	19/06/2012	06/09/2012	■
3G communications software development complete	15/08/2011	12/12/2011	Completed
Completion of changes to back-office systems	10/08/2011	11/01/2012	Completed
Completion of project	31/12/2012	24/12/2013	■

ITSO (Integrated Transport Smartcard Organisation) is the smartcard specification being mandated by the Department for Transport (DfT) for rail franchises and for the national bus concessionary scheme. Enabling the acceptance of ITSO specified tickets requires changes to TfL's ticketing systems, including a card reader capable of reading both the Oyster and ITSO tickets, establishment of a head office processing system, new and upgraded communications links and other system changes. The project is being funded by the DfT under an agreement with TfL dated 28 May 2009.

During the quarter, ITSO software was deployed to Southern (train operator) as a proof of concept. A call off contract was signed with mobile network provider O2 for provision of the "over the air" network.

Future Ticketing

Spend to end Q4 2011/12 £m	EFC £m
16.9	66.0

Programme level	Current Plan Date	Actual/Forecast Date	RAG
Phase 1 – initial bus launch to be implemented, payment of the bus single fare by contactless bank card	Early 2012	21/06/2012	■
Phase 2a – multi-modal daily travel and daily capping with contactless bank card to be implemented (Annex B: 2012)	31/12/2012	03/06/2013	■
Phase 2b – seven day capping to be implemented	31/12/2013	31/03/2013	●

The Future Ticketing Programme enables the acceptance as payment for travel of contactless cards issued on an EMV (Eurocard, Mastercard, Visa) platform both by banks and by TfL. To enable cost savings and acceptance of contactless cards, changes to the existing ticketing system and back office processes will be made.

On Phase 1, the supplier Cubic has been operating a trial of the new Oyster “over the air” functionality at Grays bus depot since February, but the build needs to stabilise before wider deployment.

The reasons for the extension of the FTP Phase 2 programme are three-fold:

- At the request of DfT, TfL has prioritised the IOP+ programme over FTP Phase 2, to enable train operators to have a viable customer proposition and meet franchise commitments to DfT from the end of 2012.
- FTP Phase 2 follows on from the initial bus launch of future ticketing. At the end of 2011 an instruction from the Mayor to implement a revised fares programme halted testing. Subsequently a technical problem emerged in the core reader software which supports over the air communication with and control of the readers, for Oyster transactions, resulting in additional testing. The combination of both delays has prevented a viable deployment before the Olympics and tied up key project resources until the Autumn. This has impacted the start date for Phase 2.
- On the phase 2 programme itself, TfL spent much of 2010 in detailed negotiations with the payment card industry on the definition of a new transaction model for transit, based on delayed aggregate pricing. Under the agreed models, TfL will manage its risks and those of its partners in the banking industry primarily through high performance transmission channels to deliver ‘deny’ listed payment card data to front line devices. TfL has also had to define a number of complex back office risk assessment processes to implement the basic transaction model and the variants since agreed with the different payment card schemes. Together these two areas have significantly increased the complexity of the solution and hence the length of the programme as finally contracted.