

Transport for London

Rail and Underground Panel

Subject: Managing Director's Report – Rail and Underground

Date: 18 October 2013

1 Purpose

- 1.1 This report provides commentary on the performance of Rail and Underground and presents updates on the status and progress of major investment projects and items of special interest in periods 3, 4, 5 and 6 of 2013/14 (26 May to 14 September 2013).
- 1.2 The Panel is asked to note this report.

2 London Underground (LU) Performance

Passenger Numbers

- 2.1 LU demand exceeded budget between periods 3 and 6 with 381.2 million passenger journeys. This is 0.4 per cent lower than the corresponding periods last year which included extra journeys made during the 2012 Games. Underlying year-on-year growth shows a 4.0 per cent increase once prior year demand is adjusted for Games related journeys.

Service Performance

- 2.2 Excess journey time averaged 4.81 minutes over the four periods which is 0.53 minutes better than target. The percentage of schedule operated was 98.1 per cent, which is 0.9 per cent better than target and 0.3 per cent better than last year's record breaking performance.
- 2.3 Service Reliability, as measured in Lost Customer Hours, beat target by 7.2 per cent for the four periods and shows a 7.6 per cent improvement over last year. The continuing trend of long-term improvement means LU is on track to meet the Mayor's commitment of reducing delays by a further 30 per cent by 2015 from 2011 levels.
- 2.4 To strengthen the investigation of major accidents to customers, the successful 'go-look-see' approach already used in project and maintenance areas for staff accidents has been extended to reduce customer accidents. TfL has re-launched a marketing campaign to encourage customers to take care when using the network.
- 2.5 The combined LU and London Rail (LR) moving annual total rate for Accidental Major Injuries is 0.33 Major Injuries per Million Hours on LU/LR Infrastructure. This is slightly worse than the target of 0.27. There were two Accidental Major Injuries to employees in periods 3, 4, 5 and 6 and 44 Accidental Major Injuries to customers.
- 2.6 LU's customer satisfaction score (CSS) Quarter 2 is 82 remaining above the target of 81.

3 LR Performance

London Overground (LO)

- 3.1 LO passenger journeys grew in the four periods and, at 43.2 million, were 10.9 per cent better than budget and 14.3 per cent higher than the same period last year. LO's operational performance was 96.6 per cent versus a target of 95.8 per cent for the moving annual average public performance reliability measure (PPM MAA).
- 3.2 Latest figures for punctuality from Network Rail's PPM MAA league table show LO as the second most punctual service in the UK (after c2c).
- 3.3 LO's CSS score has increased a point to 83 in Quarter 2 versus a target of 80.

Docklands Light Railway (DLR)

- 3.4 30.4 million passenger journeys were made between periods 3 and 6 which is on target and 11 per cent lower than last year due to journeys to and from the Games. Underlying year-on-year growth once Games journeys have been removed is 4.9 per cent. The percentage of scheduled kilometres operated was 1.2 per cent ahead of target at 99.4 per cent.
- 3.5 There was one Accidental Major Injury to an employee and none to customers in periods 3, 4, 5 and 6.
- 3.6 CSS has increased to 88, equalling the highest ever score, which was achieved in the immediate post Games period. This is six points above target.

London Tramlink

- 3.7 Tram passenger journeys, at 9.2 million for the periods, are 0.5 million below target, as a result of the hot weather and a 10 day closure of the Croydon Loop for track replacement. However, these are 1.7 per cent higher than the same period last year with the percentage of scheduled services operated 0.9 per cent above than target.
- 3.8 There were two Accidental Major Injuries to employees and none to customers between periods 3 and 6.
- 3.9 Customer Satisfaction in Quarter 2 remains at 89 versus a target of 86.

Emirates Air Line (EAL)

- 3.10 EAL year to date passenger journeys are 0.9 million which is on target against a budget of 0.9 million. Operational availability was 99.2 per cent, exceeding target by 2.7 per cent.
- 3.11 There have been no Accidental Major Injuries to employees or customers since the EAL began operation.
- 3.12 CSS remained at 93 for Quarter 2 versus a target of 85, continuing the record performance set in Quarter 4 of last year.

4 Capital Programmes

Sub Surface Railway

- 4.1 The supply of new rolling stock has continued to target, bringing the total number of S7 trains now delivered to London to 27. S-stocks are now operating in passenger service on the Circle line.
- 4.2 All 58 S8 trains are undergoing a reliability enhancement programme with eight trains completed. The programme is forecast to conclude in March 2014. The reliability of Bombardier trains continues to show a steady improvement.
- 4.3 Some significant challenges remain to deliver the capacity uplift associated with the new signalling system by 2018. The programme team are engaged in discussion at a senior level with the contractor Bombardier to review the current status and expedite the technical solution and the delivery strategy in order to maintain the integrity of the required benefits and the overall completion date.

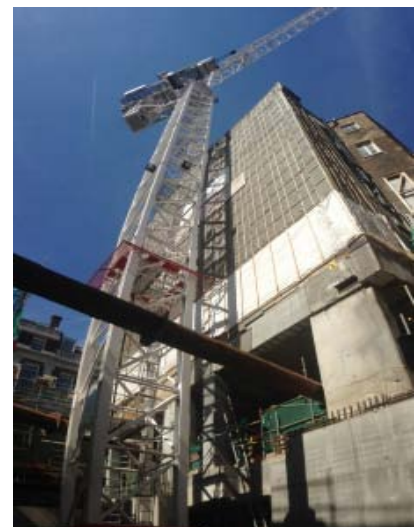


Northern Line

- 4.4 The new signalling system on the Northern line now operates between High Barnet and Highgate. Reliability has been good.
- 4.5 System testing continued between Angel and Highgate including Camden Town with results all giving positive indications for implementation in period 8.
- 4.6 System testing has also commenced ahead of programme on the remainder of the line south of Camden while good progress has also been made on the Edgware branch in preparation for system testing later in the year, with the overall programme meeting all milestones.

Major Stations Improvements

- 4.8 The Bond Street station project is on schedule and within budget. All tunnelling machinery required for the construction of the project's 500m of spray concrete lined tunnels has been successfully established in this very confined site in the centre of London's busiest shopping street, and tunnelling is progressing to plan. The construction of the basement substructure that will form part of the new station entrance has recommenced and is progressing well with the partial completion of the sub basement wall.
- 4.9 The Victoria station project remains on schedule and within budget. The Thames Water diversions to the Northern ticket hall are complete and sheet piling which will form a continuous barrier or curtain in the ground has commenced. 72 per cent of the jet grout columns are complete. The columns will



stabilise the poor ground ahead of tunnelling by injecting cement into 2,200 columns to create a solid block. The scale of jet grouting on this project is unprecedented across the United Kingdom. Work has entered a complex phase as the columns are threaded around the District and Circle running tunnels.

- 4.10 Following the Innovative Contractor Engagement (ICE) procurement process Dragados SA has been awarded the contract to transform the station entrance at Bank; work includes a new ticket hall, escalators, and lifts that will give step-free access from street level to the Waterloo & City line platforms. The winning bid secures an additional 50 per cent of value over the original base case, and achieves very substantial savings over the original project budget. The opportunity to purchase innovations from unsuccessful bidders is a key and positive feature of ICE.
- 4.11 On 29 August, improvement works at London Overground's Kensington Olympia station were successfully completed. New automatic ticket gates and a cross-track pedestrian footway for people not using the railway have been opened. Preparation started in April and engineering works commenced in June. The installation of a fourth stairway enables one side to be used by fare-paying passengers and the other for pedestrians to use as a shortcut to cross the railway. The works complement an earlier upgrade of the station that delivered a new ticket office and canopy over the platform.

Northern line extension

- 4.12 The objection period for the Transport and Works Act Order is now complete. TfL is responding to the objections and representations made as part of this process. Ground investigation work at Nine Elms finished on schedule, with no unexpected conditions found.
- 4.13 Kennington cross passage work has been added to the main Design and Build scope following a review of similar work and risks, and navigational risk assessments have begun with the Port of London Authority. Initial discussions with Network Rail have been positive.

Croxley Link

- 4.14 The Transport and Works Act order to extend the Metropolitan line to Watford Junction and build two new stations has been granted by the Secretary of State for Transport.
- 4.15 The Croxley Rail link will run from Croxley station through new stations located on Ascot Road and Vicarage Road. Construction work is due to begin in 2014 with completion scheduled for 2016.
- 4.16 The two new stations are to be called Watford Vicarage Road and Cassio Bridge.

London Overground Capacity Improvement Programme

- 4.17 The first possession for installation of the connection to the additional sidings is planned for November. In October, work starts in New Cross Gate Depot and discussions with Bombardier are concluding satisfactorily to provide the full fleet of trains and spares whilst the addition of the extra car takes place. The North London Line signalling contract and the platform extension contract tenders were issued in August 2013.

- 4.18 Network Rail has completed the traction power modelling and has confirmed that the capability of its infrastructure to support five car operation.

DLR Twin-tracking

- 4.19 The contract has been awarded for twin-tracking between Stratford and Canary Wharf/Lewisham and access has been granted under licence from the London Legacy Development Corporation. The work will enable passengers to benefit from better reliability and an increase in capacity of more than 1,000 journeys an hour by the spring of 2014, along with a brand new station at Pudding Mill Lane that is set to have the largest capacity on the DLR network.

5 Rail Devolution

- 5.1 Following the Government's announcement that it has decided in principle to devolve the West Anglia part of the Greater Anglia rail franchise to the Mayor of London, meetings are continuing with the DfT and the incumbent operator Abellio to discuss the implementation of the proposals. The first phase of work involves producing an agreed programme and a quantified risk assessment.

6 Other items of note

Central and Waterloo & City line Timetables

- 6.3 Customers have benefited from longer operating hours and an increased train service on the Waterloo & City line and more frequent services on the Central line during the busiest periods.
- 6.4 Previously, the Waterloo & City line closed on weekday evenings at 21:45 and at 18:30 on Saturdays, but from 16 September customers have been able to use the service from Bank or Waterloo beyond midnight until 00.30am.
- 6.5 The frequency of services on the Central line has increased resulting in the most intensive train service in the UK for the busiest part of the morning rush hour - the equivalent of 34 trains per hour.

National Rail Awards

- 6.6 On 19 September, LU was named Passenger Train Operator of the Year at the National Rail Awards. This is given in recognition for operators who set and achieve high standards of operation that result in increased levels of passenger satisfaction and significant increases in the use of their services.
- 6.7 LU's advanced track monitoring system received the prestigious Stephenson Award for engineering innovation. A special judge's award also recognised our contribution to the incredible success of the 2012 Games. Vince Hancock, from the Asset Performance pump team, was highly commended in the Outstanding Personal Contribution category. LU was also shortlisted in other categories, including Maintenance Team of the Year, Environment and Innovation.

International Association of Public Transport

- 6.8 In September LU hosted the UITP (International Association of Public Transport) assembly. Members from 30 countries attended to celebrate the 150th anniversary of LU and other metro anniversaries. The occasion was used to reflect on the evolution and future of metro systems, with a Seminar dedicated to Automated Metros

Underground in Bloom

- 6.9 The annual Underground in Bloom competition saw staff at tube stations putting their green-fingers to work. A team of judges assessed the entries, which included categories such as hanging baskets, tubs, cultivated gardens and fruit and veg. This year saw 68 entries from stations, depots and train crew sites and included LO stations for the first time. Judges were looking for overall impact of the display, imagination and creativity. Extra points were given for 'greener' gardens and for the interpretation of the 150th anniversary theme. The awards ceremony took place on 11 September at City Hall. The overall winning station was Hampstead station and Finchley station was awarded best cultivated garden.








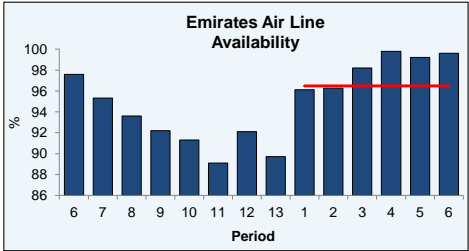
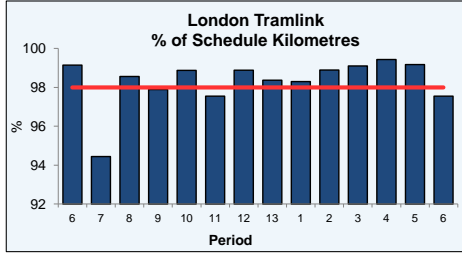
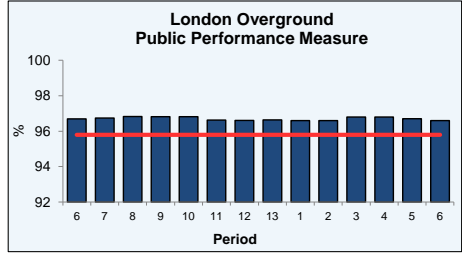
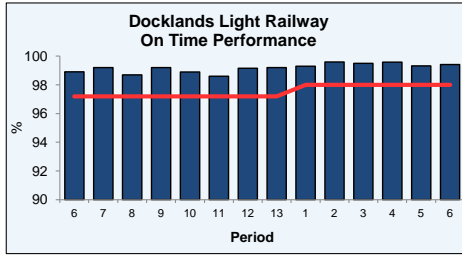
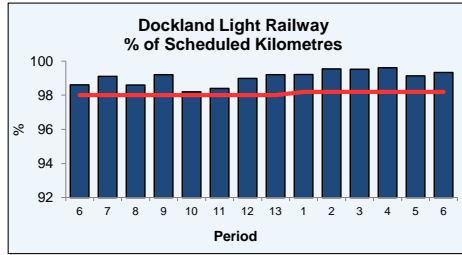
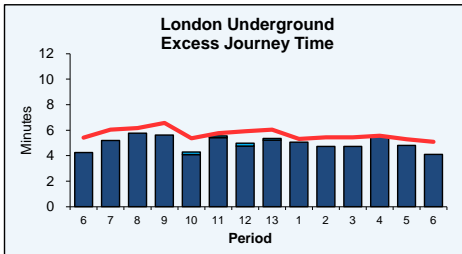
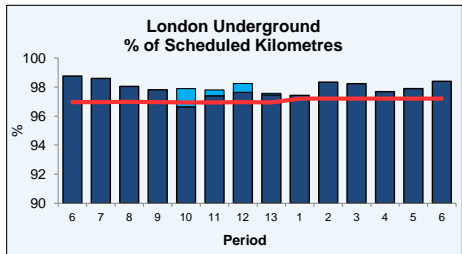
7 Recommendation

- 7.1 The Panel is asked to NOTE this report.

8 Contact


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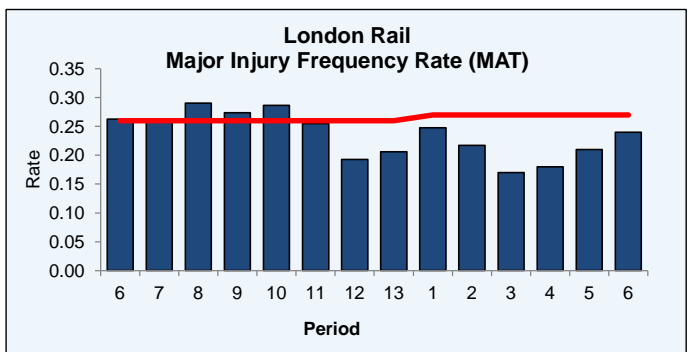
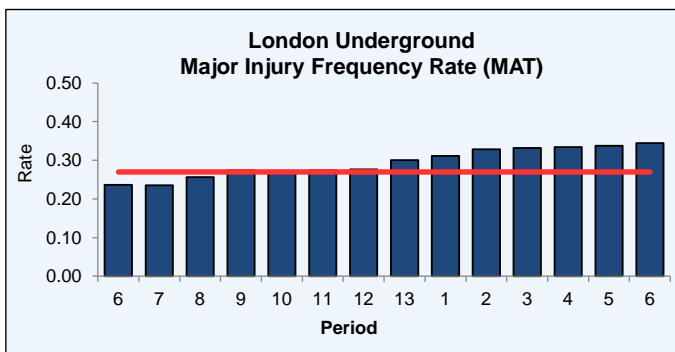
London Rail and Underground					
Service Reliability - Period 6 2013/14					
			YTD		YTD Variance
 London Underground	% of Scheduled Kilometres	%	98.0	●	0.8
	Excess Journey Time	Minutes	4.83	●	0.52
 Docklands Light Railway	% of Scheduled Kilometres	%	99.4	●	1.2
	On Time Performance	%	99.5	●	1.5
 London Overground	Public Performance Measure (MAA)	%	96.6	●	0.8
 London Tramlink	% of Scheduled Kilometres	%	98.7	●	0.7
	Availability	%	98.2	●	1.7



- Meeting or better than target
- ▲ Worse than target but within defined tolerance: 2% for Excess Journey Time, 1 percentage point for all others
- Worse than target and outside defined tolerance

London Rail and Underground Safety Performance - Period 6 2013/14






			Actual	Target		Variance
 London Underground	Major Injury Frequency Rate (MAT)	Rate	0.34	0.27	■	(0.07)
London Rail	London Rail Safety Indicator	Rate	0.24	0.27	●	0.03

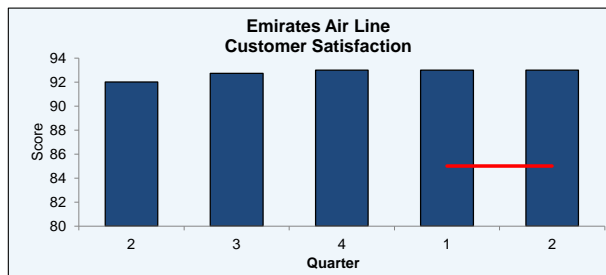
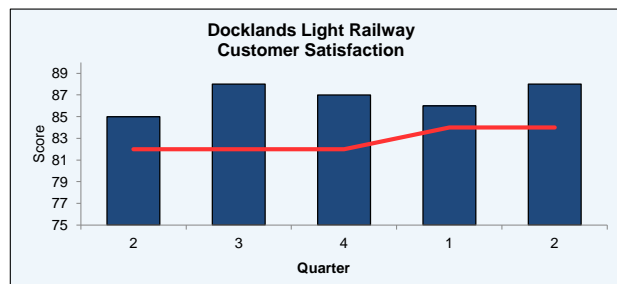


- Meeting or better than target
- ▲ Worse than target but within defined tolerance: 5% for Major Injury Frequency Rate (MAT)
- Worse than target and outside defined tolerance






The red status of the LU metric is due to a rise in the number of LU customer major injuries in the latter part of last year and also in period 1 and 2 of this year. The main causes of the injuries were slips, trips and falls on stairs and escalators. There were also a number of platform train interface incidents. A customer awareness poster campaign and communications on board trains and at stations is in place, to highlight the potential risks whilst boarding/alighting. A higher number of incidents have been reported on the Metropolitan Line, and site-specific risk assessments are being reviewed to consider if further mitigation is required to reduce likelihood/severity of incidents. To strengthen the investigation of major accidents to customers, the successful “go-look-see” approach already used for staff accidents is being extended. In the Capital Programmes Directorate to reduce accidents among staff in the supply chain, LU is proposing to run master classes to share best practice in accident and incident investigation to get to root causes and thus effective remedial measures.

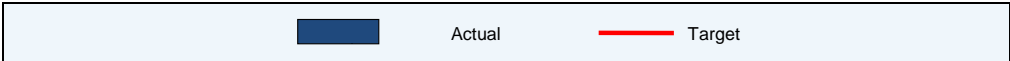
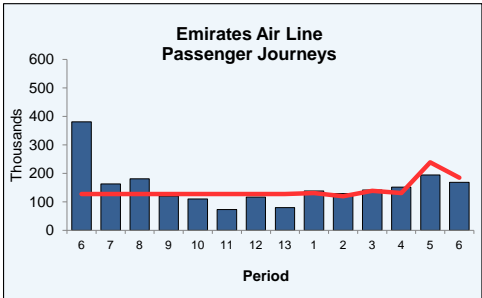
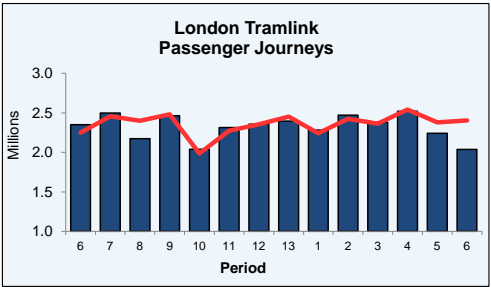
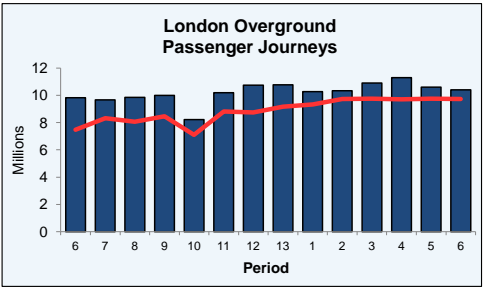
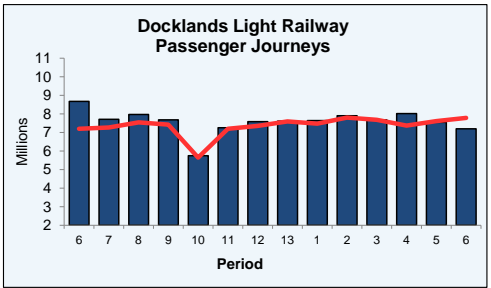
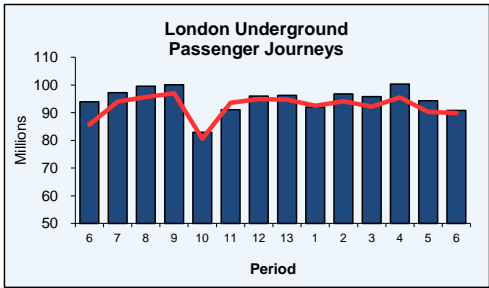
London Rail and Underground
Customer Performance - Period 6 2012/13

			Quarter 2 2013/14		2013/14 Target	YTD		YTD Variance
 London Underground	Customer Satisfaction	Score	82	●	82	83	●	1
 Docklands Light Railway	Customer Satisfaction	Score	88	●	84	87	●	3
 London Overground	Customer Satisfaction	Score	83	●	81	83	●	2
 London Tramlink	Customer Satisfaction	Score	89	●	89	89	●	0
 Emirates Air Line	Customer Satisfaction	Score	93	●	85	93	●	8



- Meeting or better than target
- ▲ Worse than target by up to 2 points
- Worse than target by more than 2 points

London Rail and Underground					
Customer Demand - Period 6 2013/14					
			YTD		YTD Variance
 London Underground	Passenger Journeys	Million	570.1	●	15.7
 Docklands Light Railway	Passenger Journeys	Million	45.9	●	0.3
 London Overground	Passenger Journeys	Million	63.8	●	5.8
 London Tramlink	Passenger Journeys	Million	13.9	●	(0.4)
 Emirates Airline	Passenger Numbers	Thousand	923.3	●	(20.4)

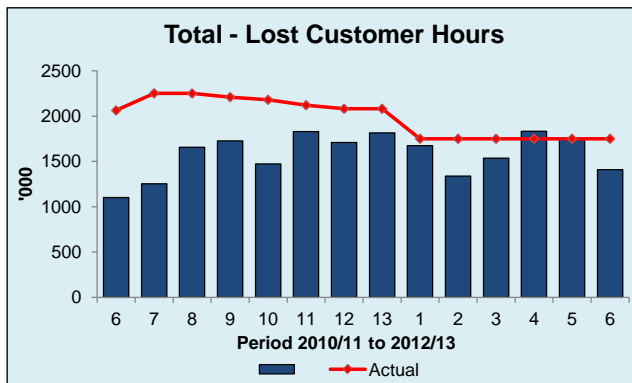
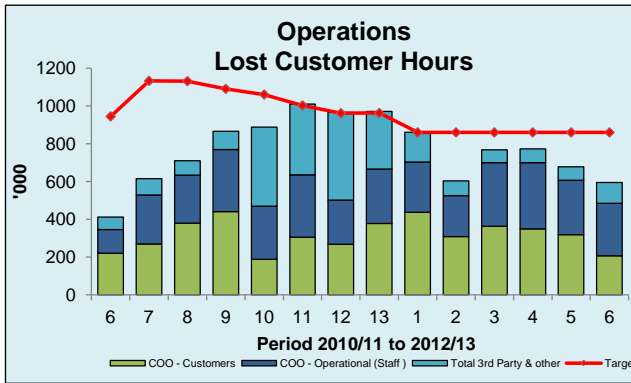
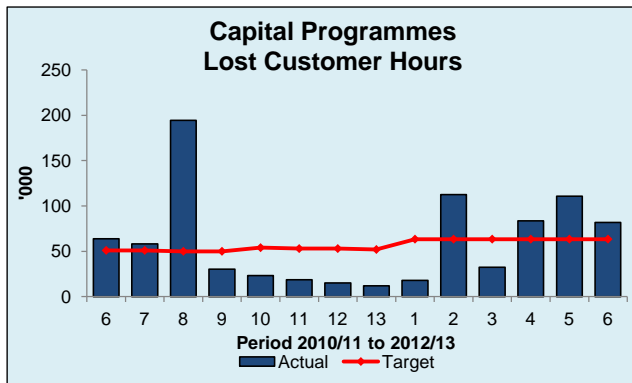
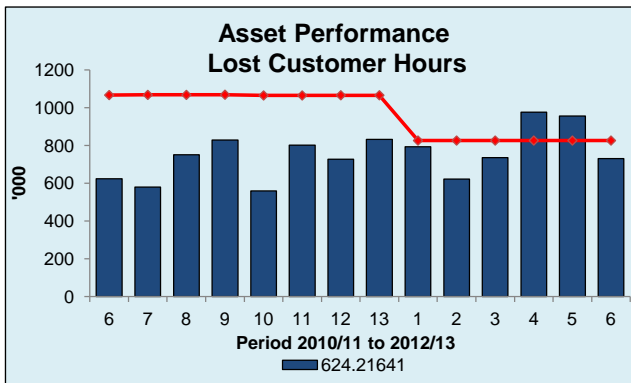


- Meeting or better than target
- ▲ Worse than target by up to 2%
- Worse than target by more than 2%

Passenger Journeys across all modes was boosted by the Olympic and Paralympic Games in periods 5 and 6 of last year, with performance for the current year to date also ahead of target.

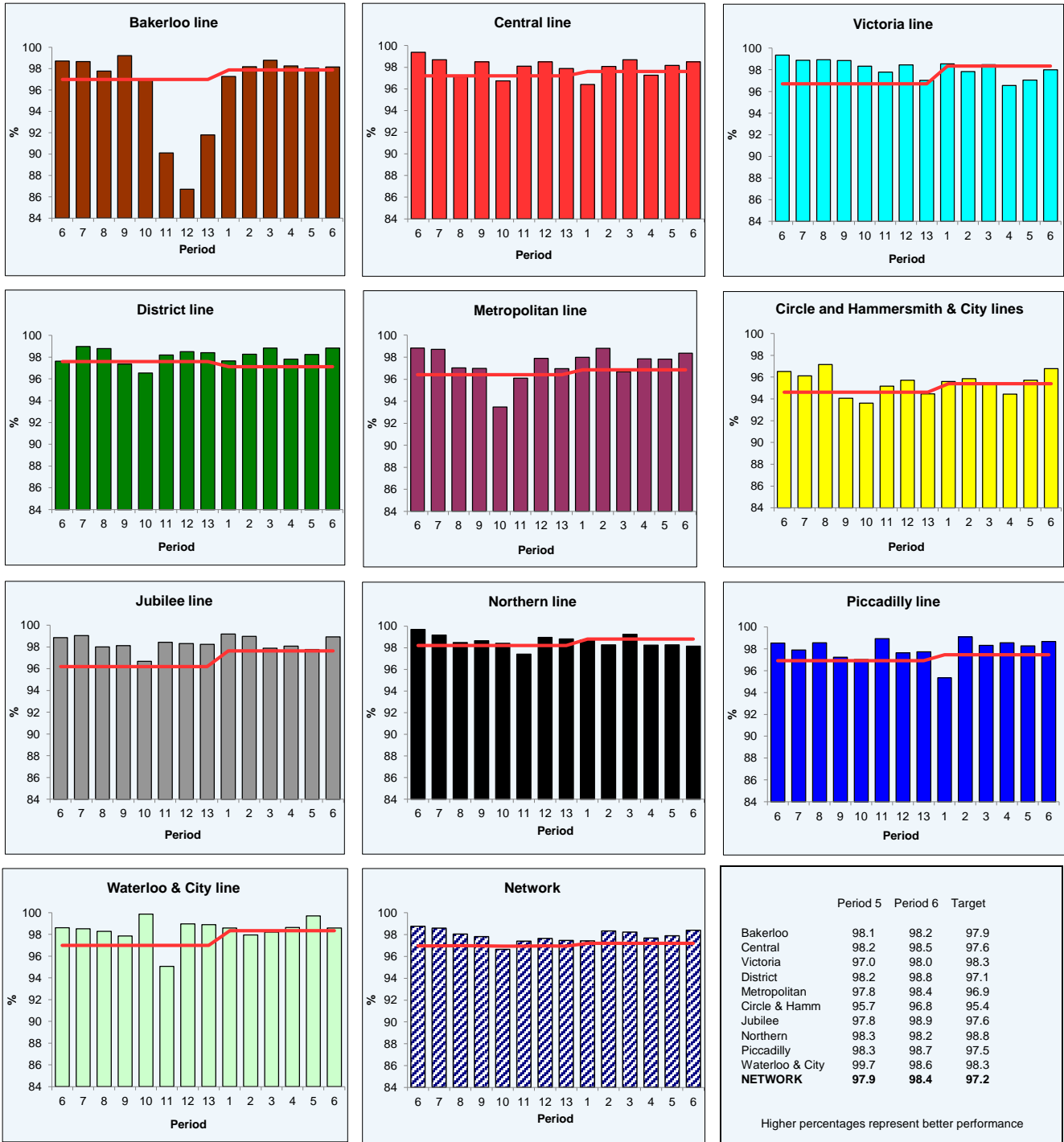
London Underground Lost Customer Hours - Period 6 2013/14

	YTD Actual '000		YTD Variance '000
Asset Performance	4,817	●	142
Capital Programmes	439	■	(58)
Operations	4,277	●	883
Total	9,533	●	967



Year-to-date CPD narrowly missed target due to an incident on the Central resulting in over 87k LCH in Period 2. A poorly positioned chair replaced during the previous nights reconditioning programme caused a track circuit failure on 4 May. There is also a TSR in place at Green Park for several periods that has contributed to worse than target performance.

London Underground Line Performance Trends Percentage of Scheduled Kilometres Operated



Actual (line colour)
 Target

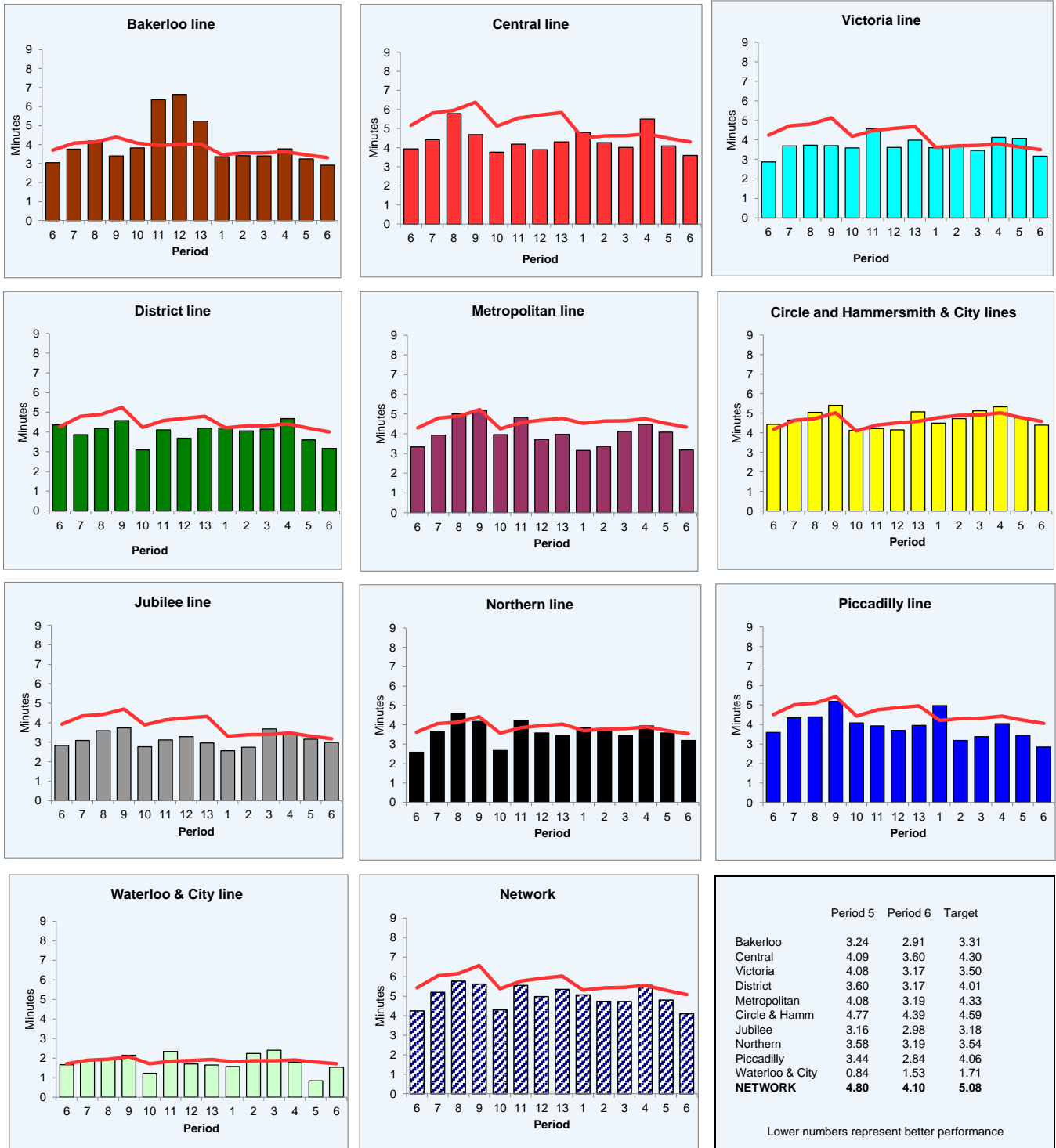
The graphs show the percentage of scheduled kilometres operated by trains in passenger service on each line. Scheduled kilometres are the distances timetabled to be run, adjusted for planned engineering works and special events

Network Percentage of Schedule kilometres operated at 98.4% improved to its highest level since Period 7 of last year beating the target of 97.2%. All lines with the exception of the Waterloo & City and Northern lines recorded a Period-on-Period improvement with the Circle & Hammersmith line recording its best percentage of schedule operated since Period 8 of last year. The only lines failing to better their respective target in the Period were the Victoria and Northern lines.

The Victoria line was impacted by a person under a train incident at Kings Cross on 22 August and also instances of Train Operator shortages in the period. The Northern line at 98.2% fell 0.6% short of target this period. A signal failure at Mornington Crescent and a defective train at Highgate disrupted services on 5 September. In week 2 of the Period, the line operated 99.8% of its schedule.

The dip on the Waterloo & City line was due to a rise in the number of defective train incidents.

London Underground Line Performance Trends Excess Journey Time



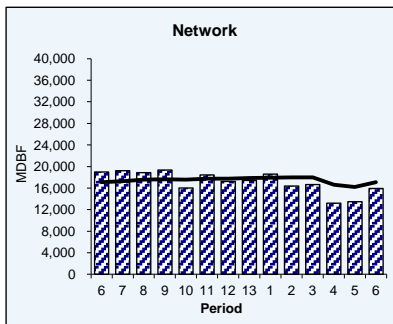
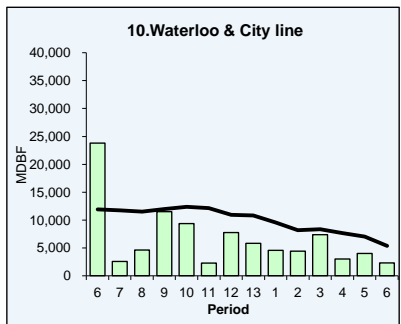
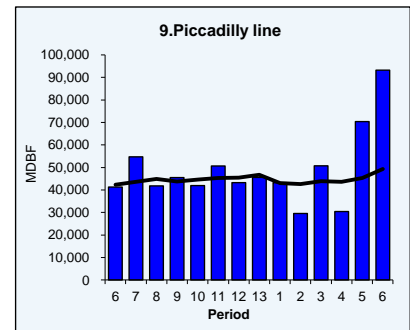
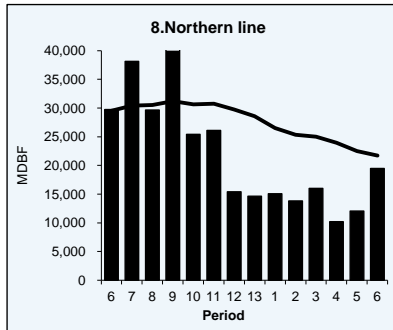
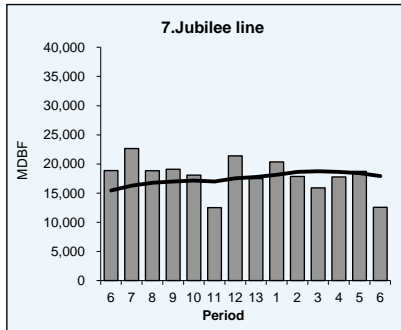
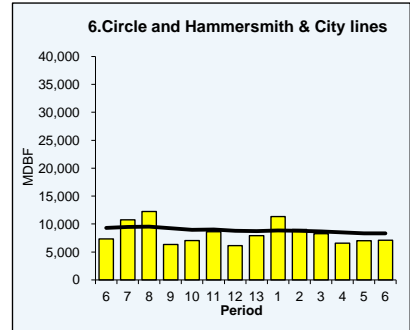
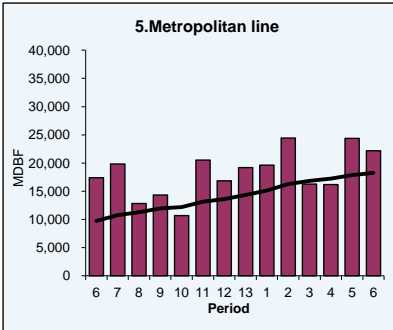
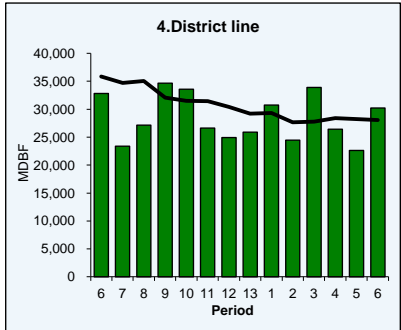
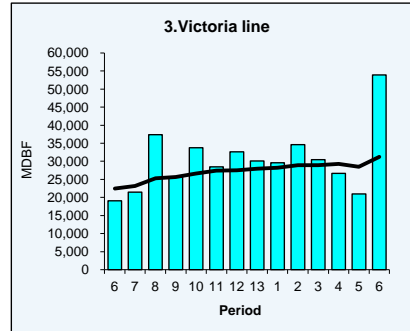
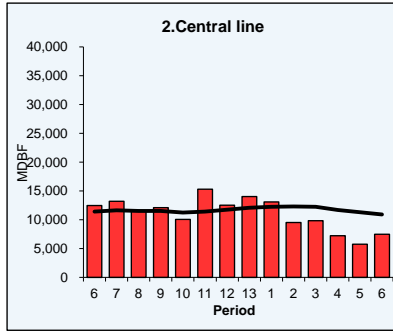
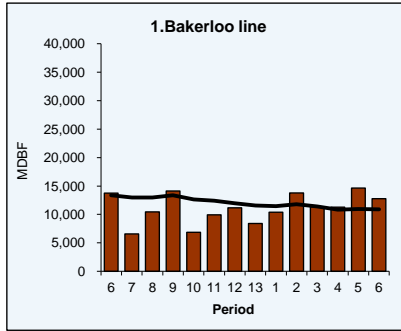
Network excess journey time (EJT) at 4.10 minutes was the best on record, beating the previous best of 4.24 minutes set in Period 6 of last year.

All elements of journey time – Trains, stations and closures - were lower than last Period, with train excess time of 2.11 minutes being at it lowest on record following a drop in the impact of train service incidents.

All lines performed better than target and also recorded a Period on Period improvement with the exception of the Waterloo & City line, which bettered its target but worsened compared with last Period. This was as a result of a rise in the number of rolling stock defects, with a particularly disruptive incident on 2 September affecting morning services.

Lowest ever excess journey times were recorded on the Bakerloo, Central and Piccadilly lines this Period. The Victoria line excess journey time was at its lowest level since Period 3 of last year whilst the District and Northern lines were at their lowest since Period 10 of last year.

London Underground Line Performance Trends Rolling Stock Mean Distance Between Failures (MDBF)



	Period 5	Period 6	MAA
Bakerloo	14,635	12,770	10,903
Central	5,768	7,492	10,901
Victoria	20,975	53,933	31,209
District	22,629	30,221	28,043
Metropolitan	24,360	22,162	18,254
Circle & Hamm	7,009	7,118	8,342
Jubilee	18,722	12,556	17,939
Northern	12,041	19,464	21,709
Piccadilly	70,331	93,230	49,306
Waterloo & City	3,991	2,301	5,343
NETWORK	13,485	15,911	17,122

Higher numbers represent better performance

Actual Train Kilometres between Failures
 Moving Annual Average

Where new stock is being or has been introduced, as on the Metropolitan line, the MDBF trends shown reflect the combined performance of both A and S stocks as this is what is reflected in the train service performance shown earlier in this report.

Overall Network MDBF improved compared with last Period but compared adversely versus the Moving Annual Average. Fleet reliability on the Victoria and Piccadilly lines was at its highest level for the year.

The number of rolling stock related faults is decreasing on the Central line as the engineering team continues to work on action plans to develop improvements to address the main cause of failures. An activity to replace components on the fleet has been approved and a schedule of works has been agreed with the supplier (due to start in January 2014 - P11). A pre-winter initiative to lag intercar air-system pipes is due for completion at the end of October (Period 8).

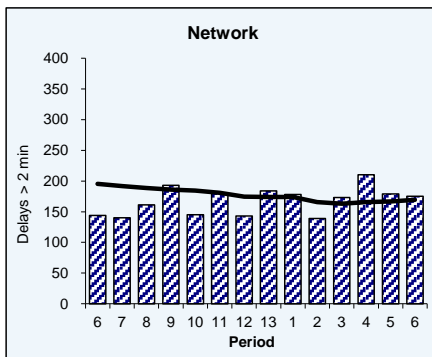
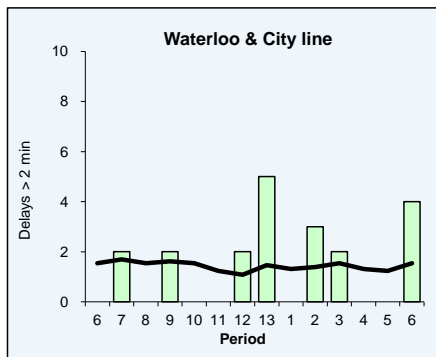
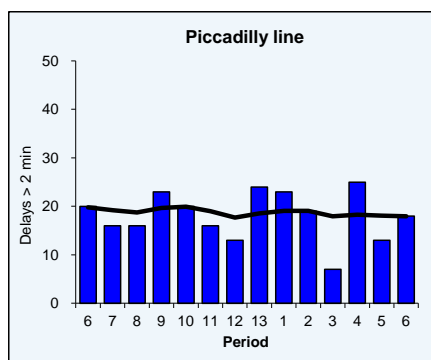
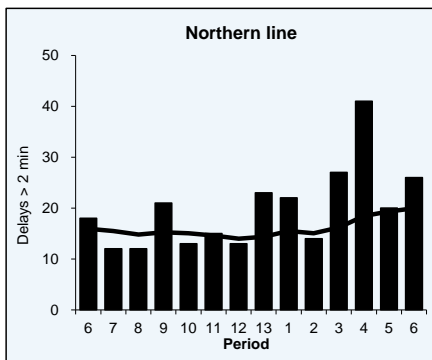
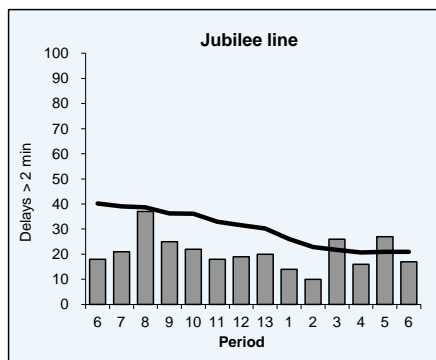
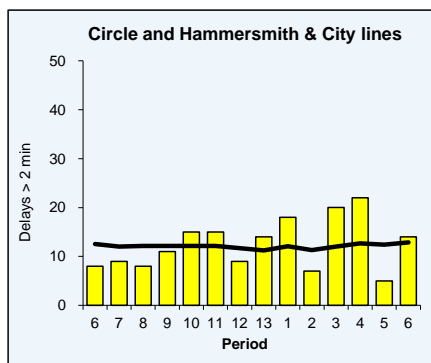
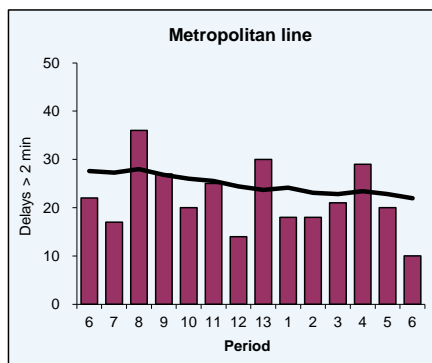
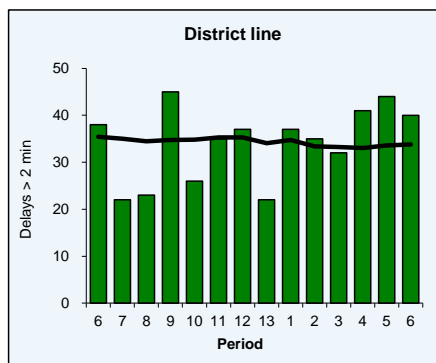
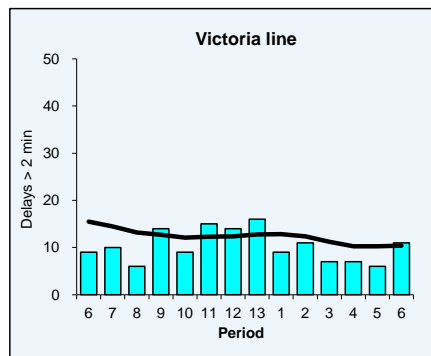
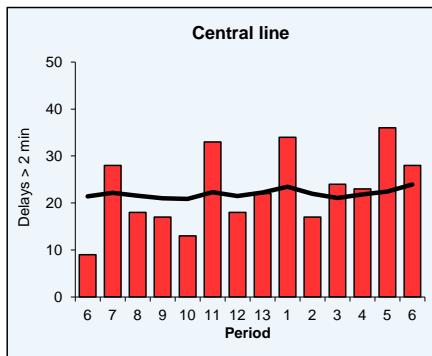
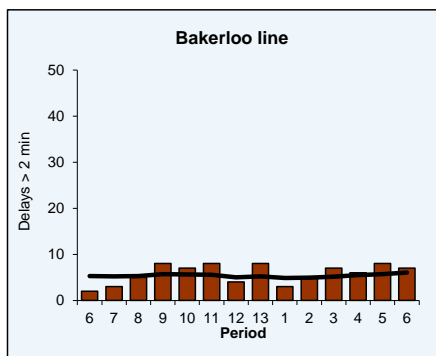
There were slight dips in fleet reliability on the Bakerloo and Metropolitan lines but MDBF compared favourably versus the MAA. The Circle & Hammersmith (C stock) was impacted by 38 incidents, 13 of which were traction related, 9 door failures and 8 brake failures. Although modifications continue on combined traction brake controller columns, defects are being assessed as to whether it is economically viable to instigate improvement initiatives as the stock is being phased out.

On the Jubilee line, a plan has been developed containing 22 initiatives covering 10 systems. These include several traction initiatives, OPO CCTV, Train Management System, TBTC and Seat bay alarms. Each program has a dedicated time line and an improvement prediction to support the growth with additional resource also being deployed to accelerate works

The Northern line accelerated TRIP initiative has shown good progress with fleet reliability at its highest level since Period 11 of last year. Work continues with improvements to the train management and other systems.

The Waterloo & City line was impacted by 9 rolling stock defects. There were two incidents involving auxiliary system faults where the trains reported sluggish movement. An activity to address this through improvements to static converters has been approved.

London Underground Line Performance Trends Signal and Point Related Delays >2 minutes



	Period 5	Period 6	MAA
Bakerloo	8	7	6
Central	36	28	24
Victoria	6	11	10
District	44	40	34
Metropolitan	20	10	22
Circle & Hamm	5	14	13
Jubilee	27	17	21
Northern	20	26	20
Piccadilly	13	18	18
Waterloo & City	0	4	2
NETWORK	179	175	169

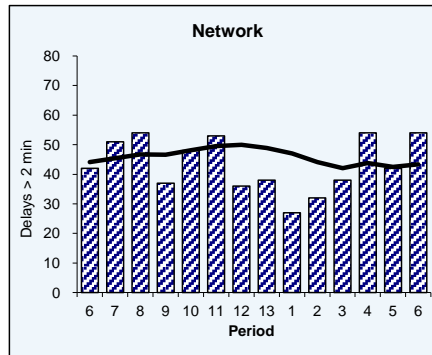
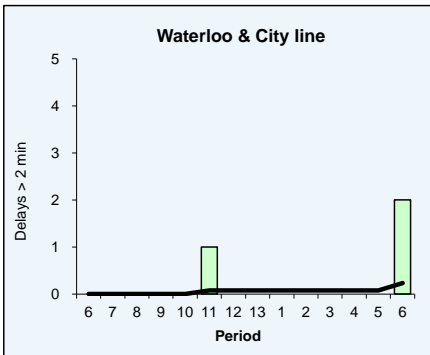
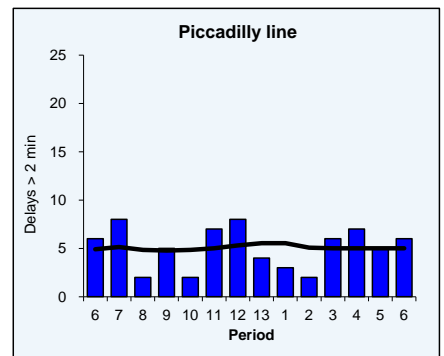
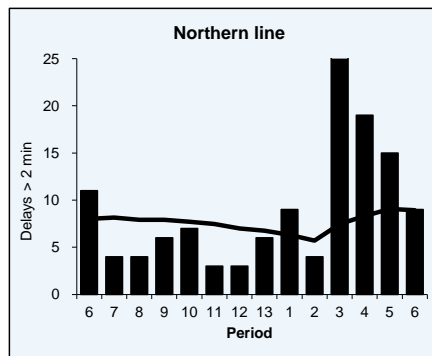
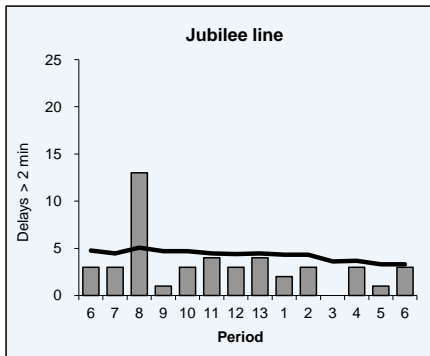
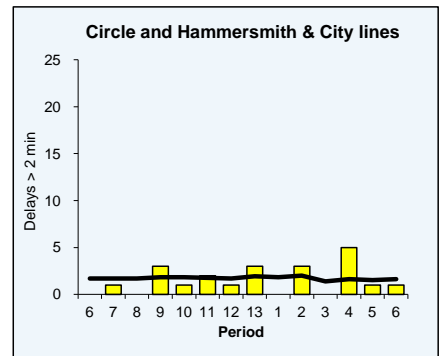
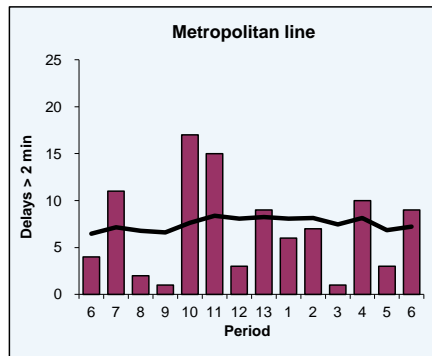
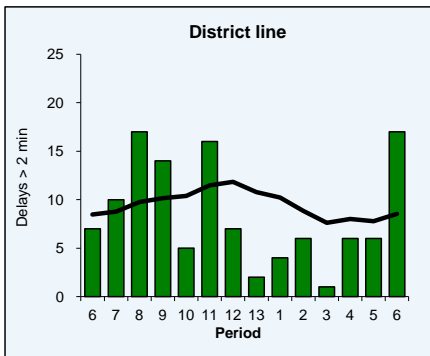
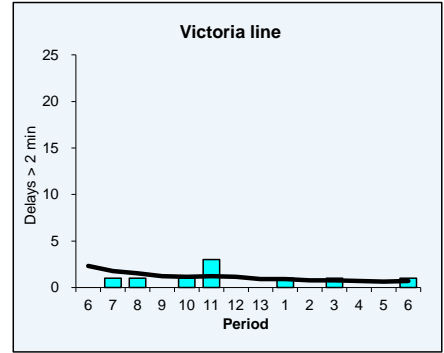
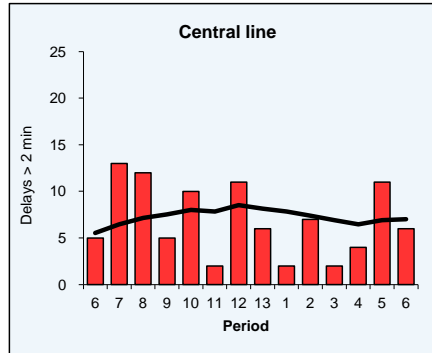
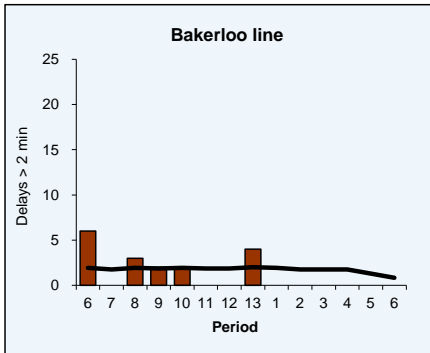
Lower numbers represent better performance

Actual
 Moving Annual Average

The number of signalling related delays fell by 4 to 175 in Period 6. There were significant reductions recorded on the Jubilee and Metropolitan lines with the Metropolitan line recording its lowest number of signalling related delays for over a year. Even though the Central and Jubilee lines improved, train detection faults affected the Central line whilst Transmission Based Train Control issues impacted the Jubilee line. Whilst there were significant reductions on the Central line also, the underlying trend is increasing.

The Victoria line was impacted by 11 signalling related delays this Period, with the majority due to train detection faults. There was a slight reduction in the number of delays on the District line although train detection and describer defects continue to affect the line. The Circle & Hammersmith line recorded 14 delays. There was no single underlying cause but signal failures at Baker Street on 10 September and at Moorgate on 13 September caused delays to service. The Northern line was impacted by 26 delays with the vast majority affecting the north end of the line. There was no single cause but a signal failure at Mornington Crescent on 5 September was particularly disruptive. The Piccadilly line recorded 18 signal related delays with over half due to train detection faults.

London Underground Line Performance Trends Track Related Delays >2 minutes



	Period 5	Period 6	MAA
Bakerloo	0	0	1
Central	11	6	7
Victoria	0	1	1
District	6	17	9
Metropolitan	3	9	7
Circle & Hamm	1	1	2
Jubilee	1	3	3
Northern	15	9	9
Piccadilly	5	6	5
Waterloo & City	0	2	0
NETWORK	42	54	43

Lower numbers represent better performance

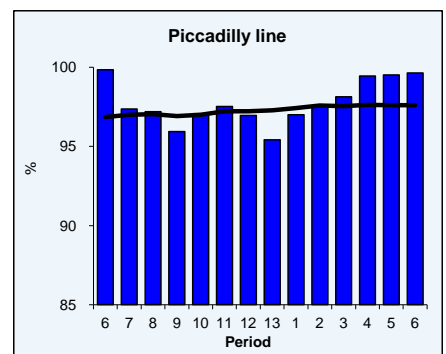
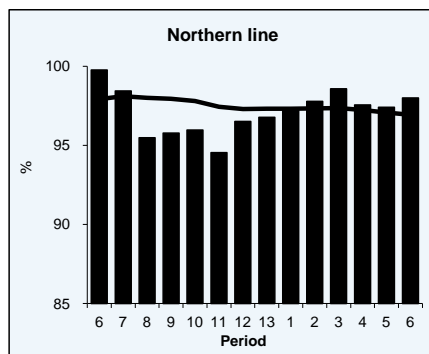
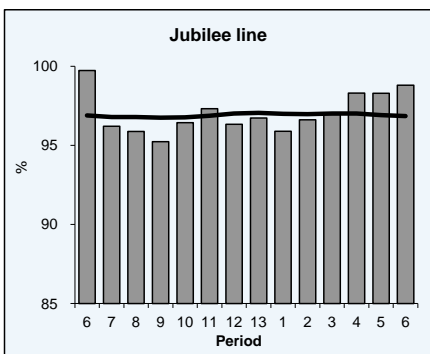
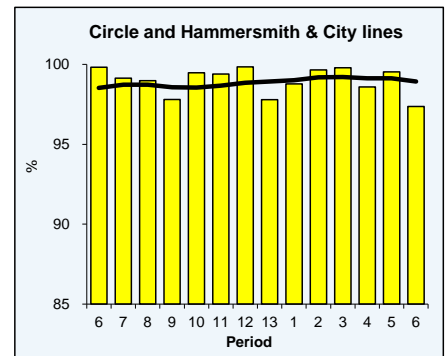
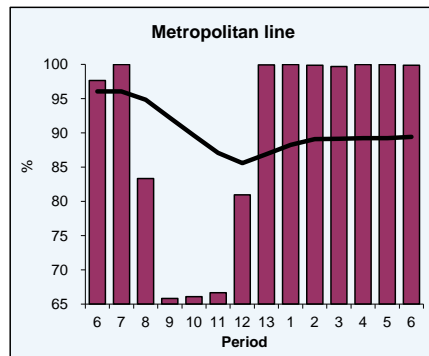
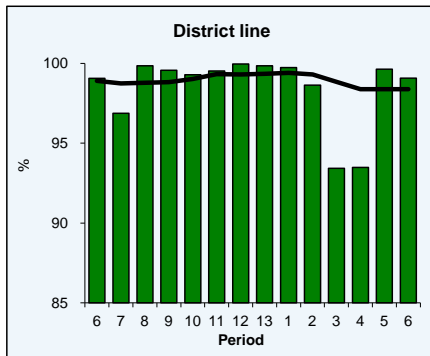
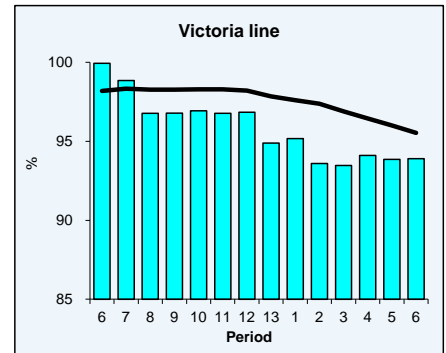
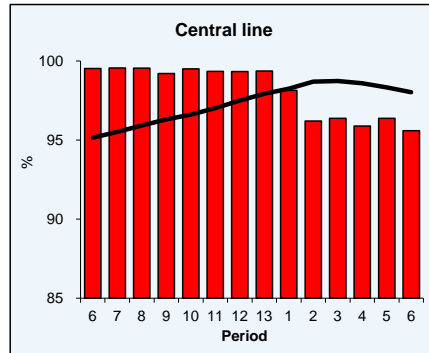
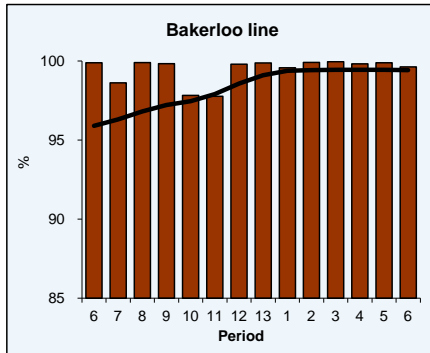
Actual
 Moving Annual Average (MAA)

The number of track related delays rose to 54 and also compared adversely versus the MAA.

The District and Metropolitan lines were impacted by temporary speed restrictions being imposed over sections of defective track.

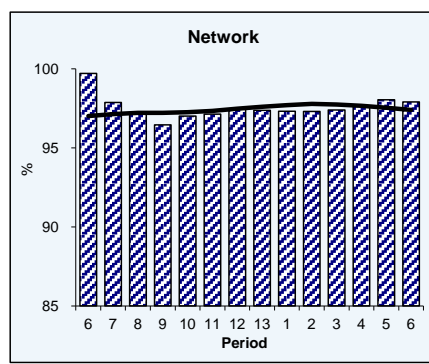
The number of track related delays on the Northern line fell for the third successive period following ultrasonic testing discovering track defects in prior periods.

London Underground Line Performance Trends Escalator Availability



Waterloo & City line

The stations served by the Waterloo & City line are managed by the Jubilee line (Waterloo) and the Central line (Bank)



	Period 5	Period 6	MAA
Bakerloo	99.9	99.6	99.4
Central	96.4	95.6	98.0
Victoria	93.9	93.9	95.5
District	99.6	99.1	98.4
Metropolitan	100.0	99.9	89.4
Circle & Hamm	99.5	97.4	98.9
Jubilee	98.3	98.8	96.8
Northern	97.4	98.0	96.9
Piccadilly	99.5	99.7	97.6
Waterloo & City	n/a	n/a	n/a
NETWORK	98.0	97.9	97.4

Higher percentages represent better performance

Actual
 Moving Annual Average (MAA)

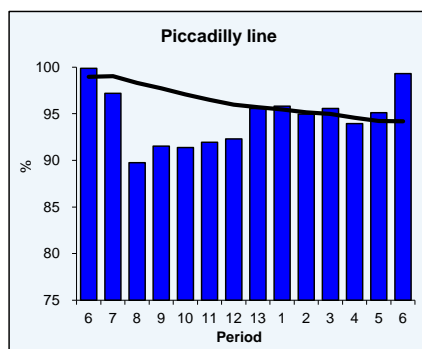
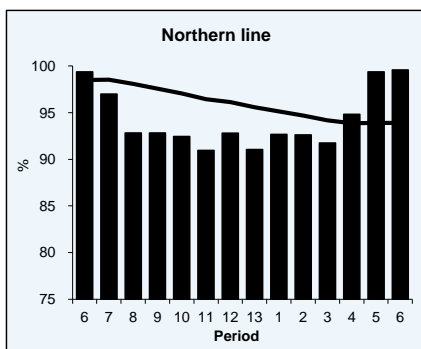
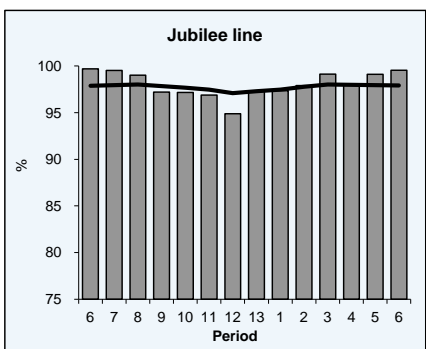
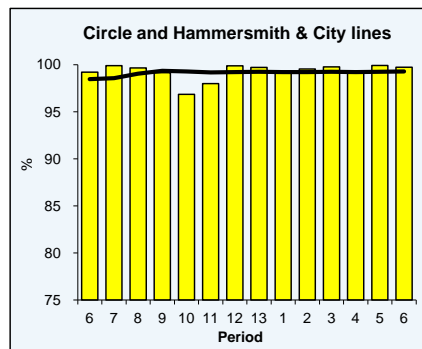
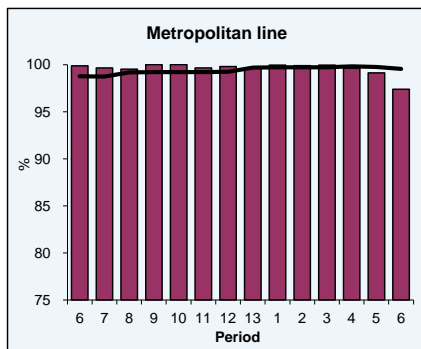
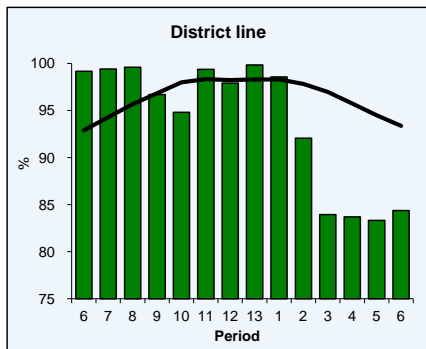
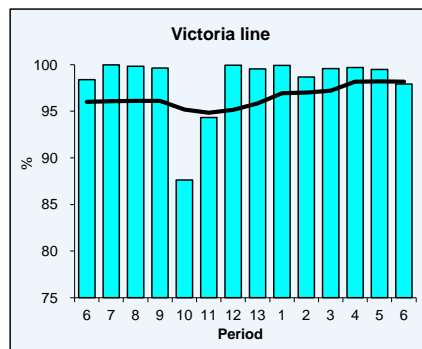
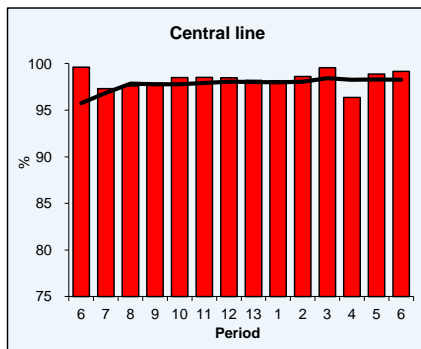
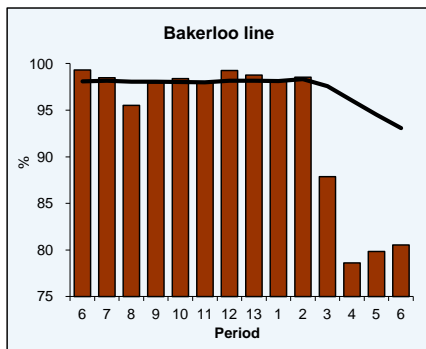
Network escalator availability dipped slightly to 97.9% in Period 6 (99.7% excluding planned work). Planned escalator work was carried out on the Central, Circle & Hammersmith, Victoria, Jubilee and Northern lines in the period.

Escalator availability on the Bakerloo line in periods 10 and 11 of last year was affected by planned maintenance work at Oxford Circus. Central line availability since mid April 2013 (Period 1) has been impacted by replacement works at Bank.

Planned works were carried out on several escalators at Victoria throughout last year on the Victoria Line. Escalator refurbishment work is being carried out at Highbury & Islington (since Period 2) and Vauxhall (since Period 1). District line availability in Period 7 of last year was affected by a defect on Escalator 6 at Embankment whilst works were carried out Earl's Court impacting in Periods 2 to 5 this year.

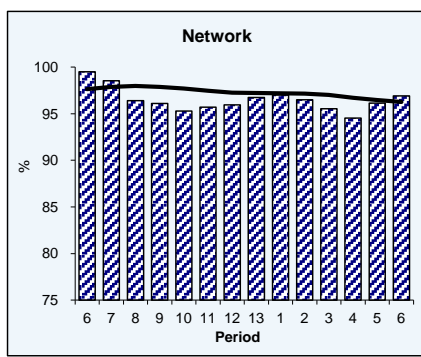
Planned refurbishment work at Baker Street numbers 1 and 2 was completed on 19 February 2013 (Period 12) improving availability on the Metropolitan line following works since Period 8 2012/13. The Northern line was affected by planned works at Highgate and Clapham South impacting on availability between Periods

London Underground Line Performance Trends Lift Availability



Waterloo & City line

The stations served by the Waterloo & City line are managed by the Jubilee line (Waterloo) and the Central line (Bank)



	Period 5	Period 6	MAA
Bakerloo	79.8	80.5	93.1
Central	98.9	99.2	98.3
Victoria	99.5	97.9	98.2
District	83.3	84.4	93.4
Metropolitan	99.1	97.4	99.5
Circle & Hamm	99.9	99.7	99.3
Jubilee	99.1	99.5	97.9
Northern	99.4	99.6	93.9
Piccadilly	95.1	99.3	94.2
Waterloo & City	n/a	n/a	n/a
NETWORK	96.1	96.9	96.2

Higher percentages represent better performance

Actual
 Moving Annual Average (MAA)

Network lift availability improved to 96.9% (98.1% excluding planned work) following the completion of refurbishment works at Russell Square on the Piccadilly line. The replacement of Edgware Road lifts on the Bakerloo line commenced on 6 June 2013 with works expected to be complete by late December (Period 10). Planned works are also being carried out at Hammersmith (since Period 2 of this year) on the District line (although the effects of these works are felt by Piccadilly line passengers).

Bakerloo line availability in Period 8 of last year was impacted by defects at Lambeth North lift number 2. On the Victoria line, availability was affected by a hydraulic fault at Walthamstow Central in Periods 10 and 11. In the current Period, there were persistent door related defects on lift no. 2 at Brixton. The dip in Period 10 2012/13 on the District line was as a result of a defect at Earl's Court lift number 6. This Period, Hillingdon lift no.1 was impacted by a door defect which led to the dip in availability on the Metropolitan line. Circle & Hammersmith line availability was affected by faults with Kings Cross lift number 5 in Periods 10 and 11 2012/13. There were planned works on various lifts throughout this year and last on the Jubilee, Northern and Piccadilly lines.