



London Underground Performance report

Period 6 2015/16
23 August 2015 – 19 September 2015

538

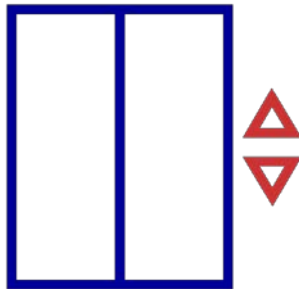
trains

on a weekday morning



270
stations

167
lifts



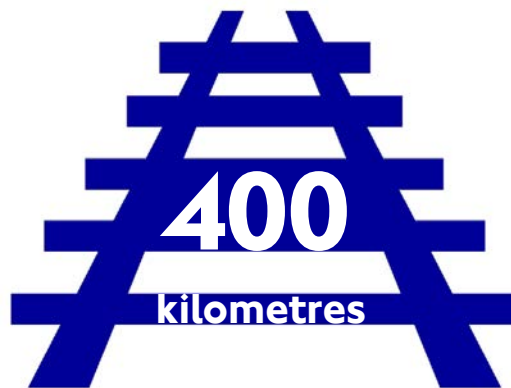
escalators

430



05:00 to 01:00

05:30 to 00:30 Sunday



400

kilometres

For the year 2015/16, LU has set increasingly challenging targets to drive improvements in performance across the network.

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Front cover: Canary Wharf station

Inside front cover: London Underground performance in context



London Underground

Performance Report

Period 6 2015/16, 23 August 2015 – 19 September 2015

This report presents the performance of London Underground (LU) during Period 6 of the 2015/16 financial year. It contains a series of performance measures and commentary that reflects our performance in relation to customers' experience of travelling on the Underground. There's a glossary explaining these measures on pages 18 to 19.

Customer Satisfaction Survey (CSS)

LU's overall CSS score for Quarter 2 2015/16 was 85, matching its highest ever score, achieved in Q4 last year and Q1 of this year.

Reliability was excellent again, with only four per cent of customers saying they had experienced a disruption or delay – the lowest proportion since the question was first asked in Q1 2013/14. The score of 82 for staff helpfulness was maintained from the previous quarter.

Passenger journeys

There were 97.6 million passenger journeys made in Period 6, an increase of 4.4 million compared to the same period last year.

Passenger demand continues to rise and has grown by 3.6 per cent (4.6 per cent excluding industrial action) since last year.

Train service

The network operated approximately 6.4 million kilometres in Period 6, equating to 98.0 per cent of scheduled kilometres operated. This was 0.3 million kilometres higher than the same period last year.

Journey time & excess journey time (EJT)

Network excess journey time (EJT) was better than target at 4.06 minutes in Period 6.

Total journey time at 41.46 minutes was better than the moving annual average (MAA) and the same period last year, when total journey time was 42.15 minutes.

Station service

There were 32 station closures in Period 6, the lowest number since Period 6 of last year, with a total duration of 22 hours and 54 minutes.

This means that LU stations were open for 99.98 per cent of their scheduled hours.

Service disruption – lost customer hours (LCH)

Network reliability measured in lost customer hours (LCH) was 1.67million in Period 6. Action short of a strike by fleet maintenance staff accounted for 0.21 million LCH this period.

The top five highest LCH incidents by line in this period are shown on page 17.

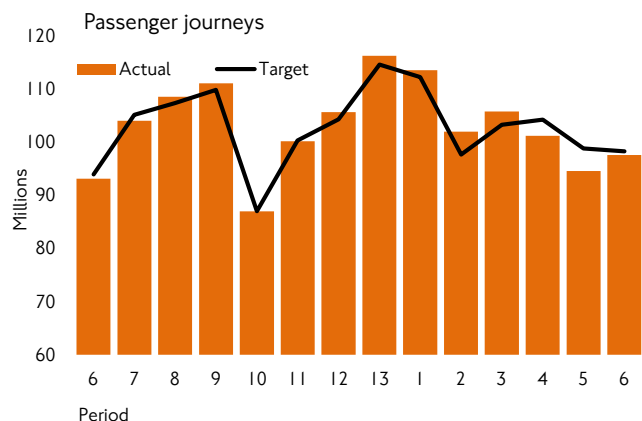
Network performance summary - 2015/16 Period 6

Targeted measures	Unit	Year ago	Last period	This period	Target	Trend chart(s)
Customer satisfaction - overall evaluation ^{(1) (2)}	Score	84	85	85	84	Page 2
Passenger journeys ⁽²⁾	Millions	93.2	94.6	97.6	98.3	Page 2
Percentage of scheduled kms	%	97.5	92.7	98.0	98.2	Page 3
Excess journey time	Minutes	4.37	5.43	4.06	4.26	Page 4

Other measures	Unit	Year ago	Last period	This period	Moving annual av	Trend chart(s)
Total journey time	Minutes	42.15	43.03	41.46	41.96	Page 5
Percentage of scheduled kms (peak)	%	96.8	90.6	96.4	96.2	Page 6
Percentage of scheduled kms (off-peak)	%	97.8	93.4	98.5	97.6	Page 6
Percentage of timetabled kms (weekdays)	%	97.4	90.2	97.1	96.4	Page 7
Percentage of timetabled kms (weekends)	%	86.6	90.8	91.6	90.3	Page 7
Station closures	Number	30	298	32	81	Page 8
Escalator availability	%	96.4	97.9	97.6	96.8	Page 9
Lift availability	%	93.7	94.5	93.2	94.8	Page 10
Rolling stock mean distance between failures	Kilometres	19,204	17,808	18,126	19,535	Page 12
Signal & points related delays, over two minutes	Number	187	131	108	165	Page 13
Customer related delays, over two minutes	Number	340	375	359	386	Page 14
Lost customer hours	000s	1,432	5,238	1,670	2,034	Page 15

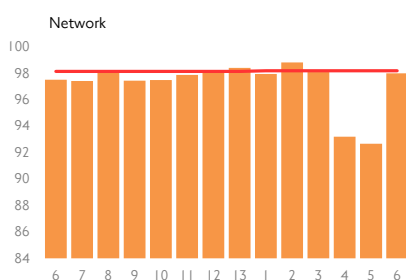
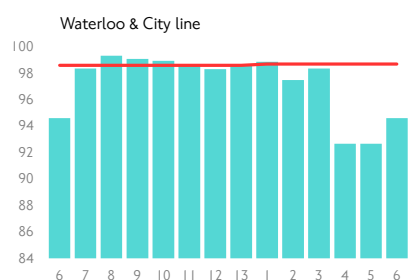
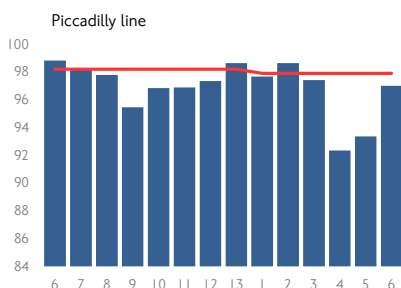
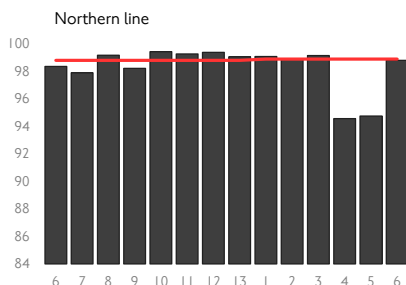
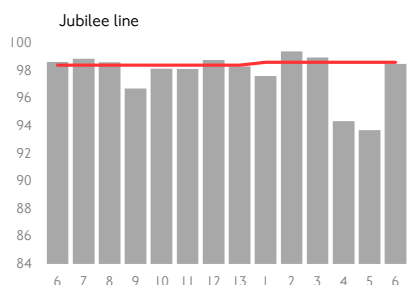
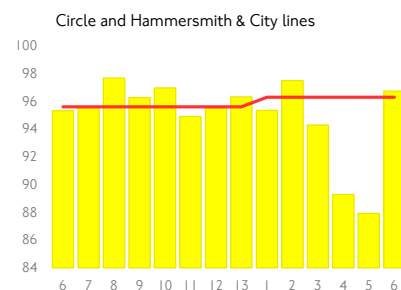
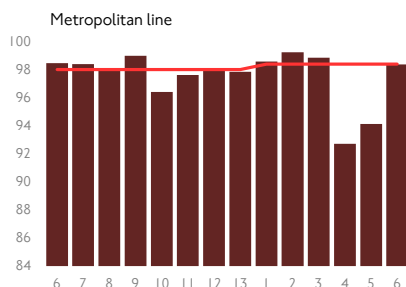
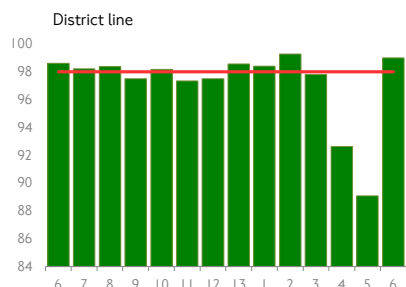
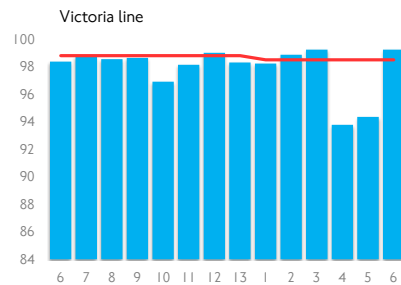
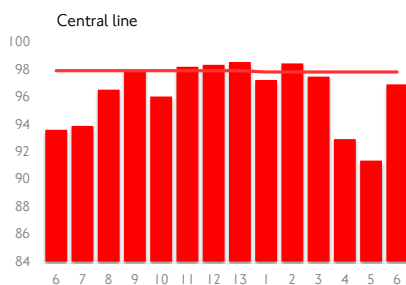
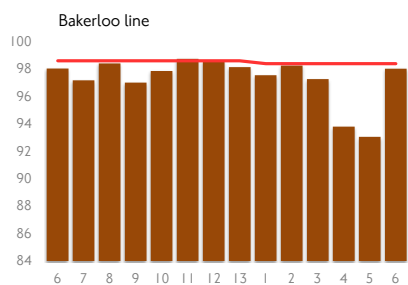
⁽¹⁾ Customer satisfaction is measured quarterly, so the figures shown in 'This period' and 'Last period' columns are for the most recent and previous quarters.

⁽²⁾ These results are reported at network level only. All other measures in this table are reported by line in the following pages.



Percentage of scheduled kilometres operated, all day, every day - 2015/16 Period 6

Actual (line colour) Target



	Period 5	Period 6	Target
Bakerloo	93.1	98.0	98.4
Central	91.4	96.9	97.8
Victoria	94.4	99.2	98.5
District	89.1	99.0	98.0
Metropolitan	94.1	98.4	98.4
Circle & Hamm	87.9	96.7	96.3
Jubilee	93.7	98.5	98.6
Northern	94.7	98.8	98.9
Piccadilly	93.4	97.0	97.9
Waterloo & City	92.7	94.6	98.7
NETWORK	92.7	98.0	98.2

Higher percentages represent better performance

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.

The network operated approximately 6.4 million kilometres in Period 6, equating to 98.0 per cent of scheduled kilometres operated. This was 0.3 million kilometres higher than the same period last year.

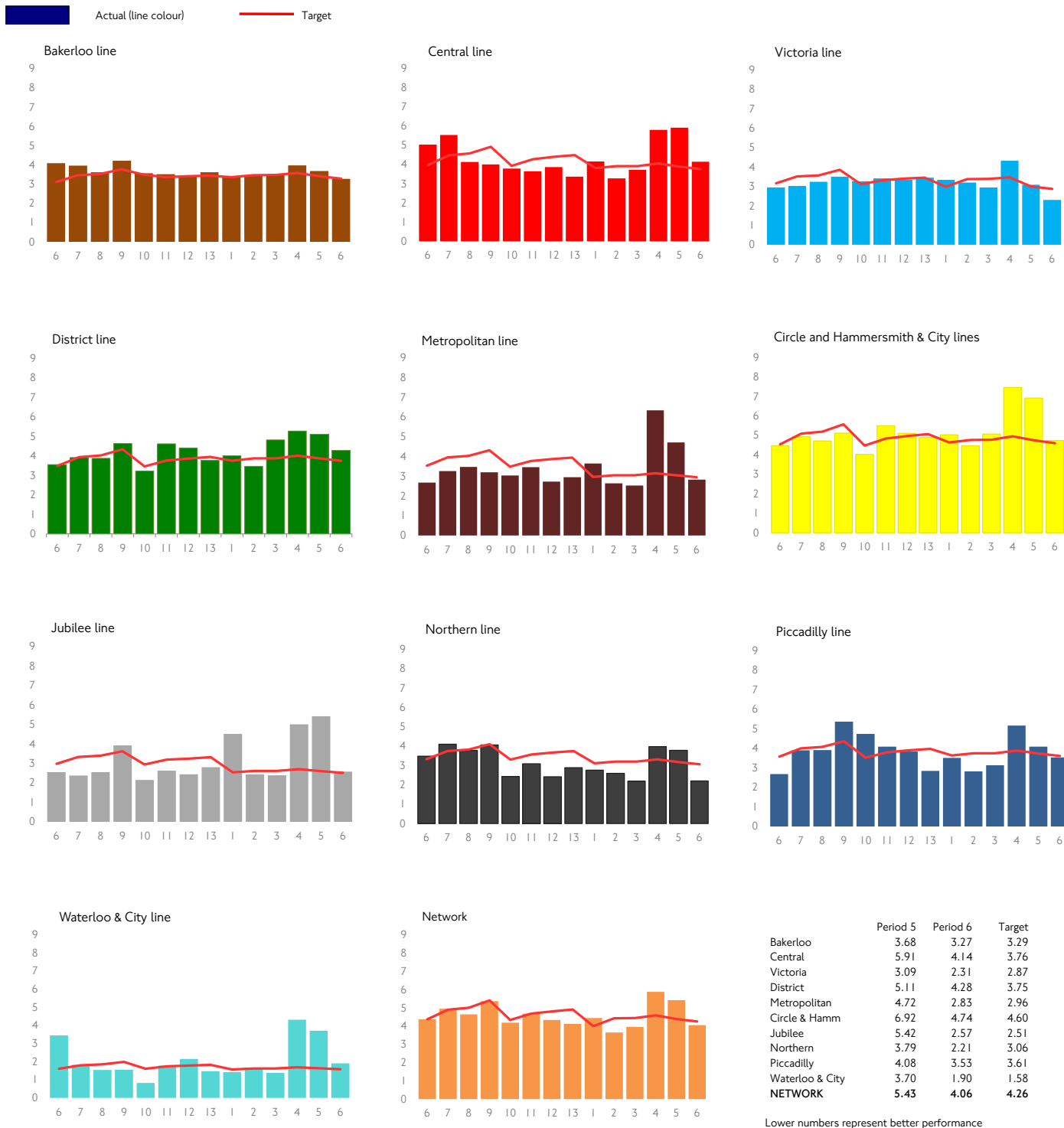
Bakerloo line performance was affected by a points failure at Piccadilly Circus, while the Central line was impacted by action short of a strike by fleet maintenance staff affecting the number of trains available for service.

The Victoria, District, Metropolitan and Circle and Hammersmith & City lines all met or bettered their targets this period. The Jubilee and Northern lines both showed an improvement this period but narrowly missed their targets.

The Piccadilly line was affected by delays due to signal related issues at Wood Green and Bounds Green, while Waterloo & City line performance was affected by the activation of a fire alarm at Bank.



Excess journey time (EJT), in minutes – 2015/16 Period 6



Excess journey time (EJT) is the time in minutes to complete an average journey on the network over and above the expected time, weighted by customer time values.

Network excess journey time (EJT) was better than target at 4.06 minutes in Period 6. The Bakerloo, Victoria, Metropolitan, Northern and Piccadilly lines all beat their respective targets this period. The Jubilee line narrowly missed its target due to a signalling system related failure at Stratford.

Central line performance was impacted by a stalled train at Bond Street and a track circuit failure at North Acton, while Waterloo & City line performance was affected by a fire alarm activated at Bank.

The calculation includes the impact of planned closures.

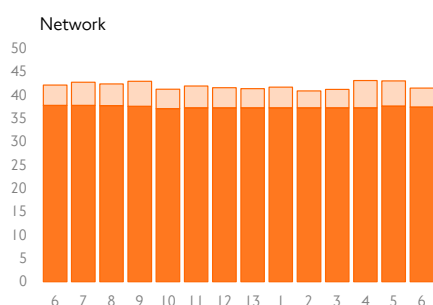
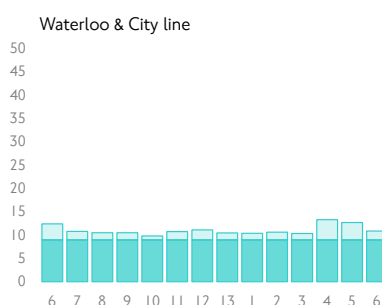
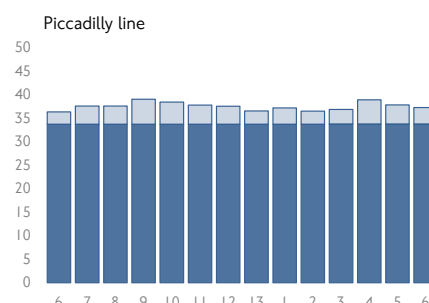
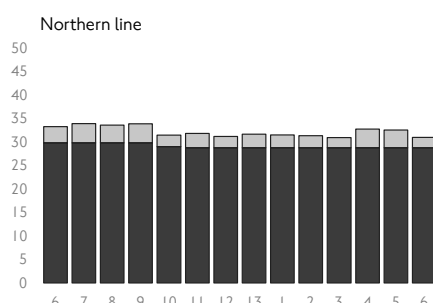
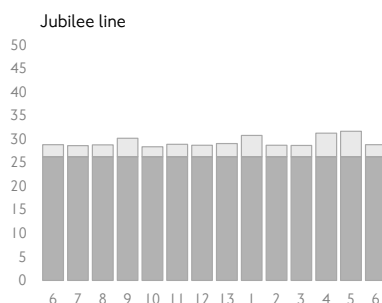
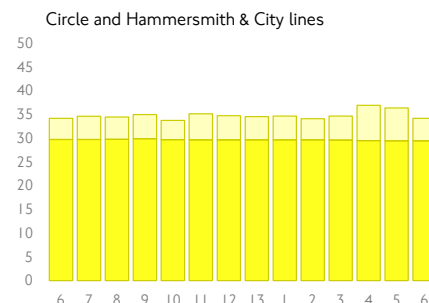
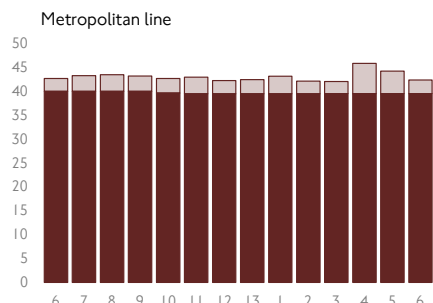
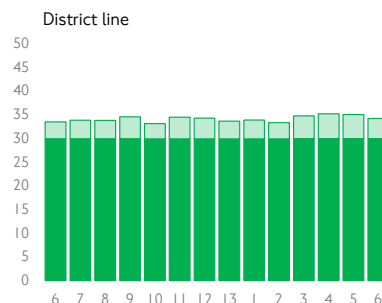
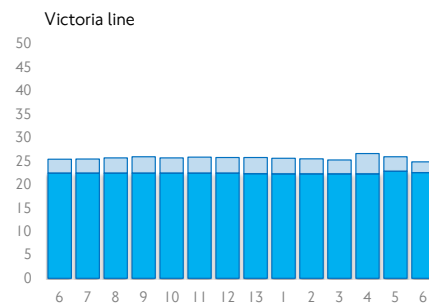
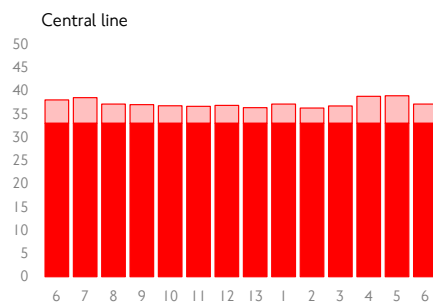
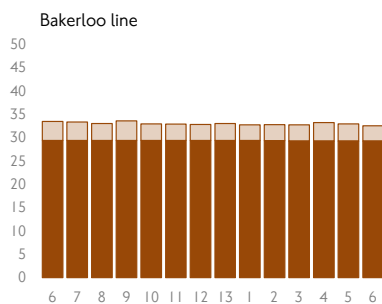
On the District line, heavy rain caused a track circuit failure at Gunnersbury, while on the Circle and Hammersmith & City line a train was withdrawn from service at Farringdon due to an obstructed door runner.



Total journey time (minutes) - 2015/16 Period 6

Scheduled journey time

Excess journey time



	Period 6		
	Schedule	Excess	Total
Bakerloo	29.28	3.27	32.55
Central	33.00	4.14	37.14
Victoria	22.51	2.31	24.82
District	29.87	4.28	34.15
Metropolitan	39.54	2.83	42.37
Circle & Hamm	29.44	4.74	34.19
Jubilee	26.26	2.57	28.83
Northern	28.80	2.21	31.00
Piccadilly	33.68	3.53	37.21
Waterloo & City	8.97	1.90	10.87
NETWORK	37.41	4.06	41.46

Lower numbers represent better performance

The time in minutes to complete an average journey on the network, weighted by customer time values (see glossary).

Total journey time was 41.46 minutes in Period 6, which was better than the same period last year, when total journey time was 42.15 minutes.

Network scheduled journey time improved by 0.20 minutes, due to the completion of planned engineering works on the Victoria line between Seven Sisters and Walthamstow Central, that will enable an increase in train frequencies from next year.

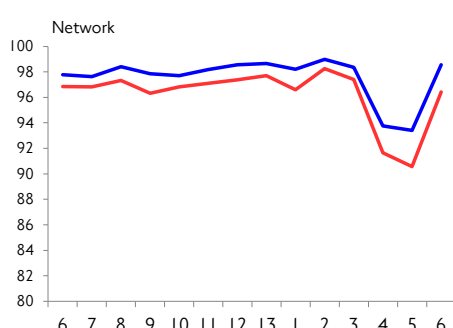
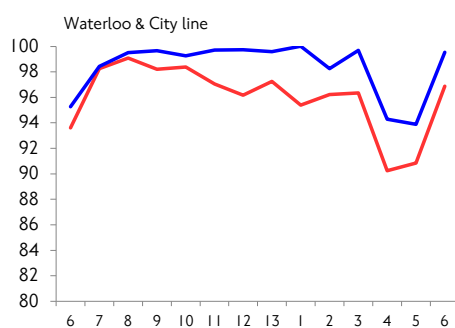
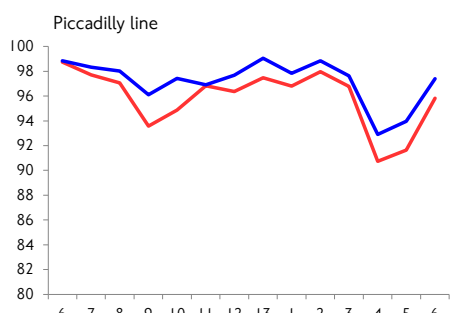
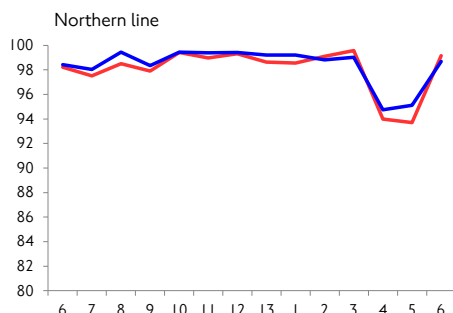
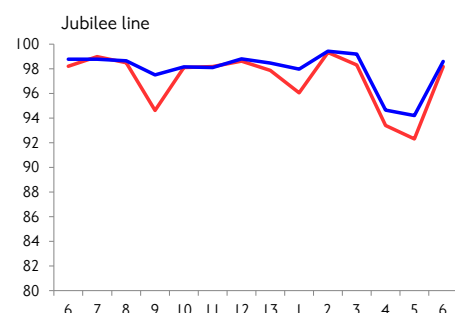
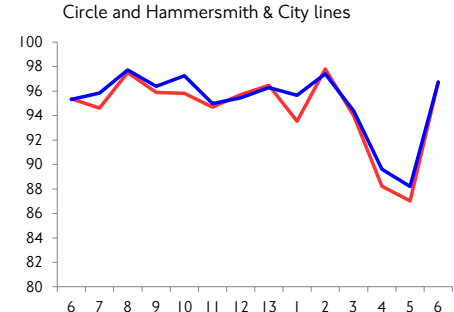
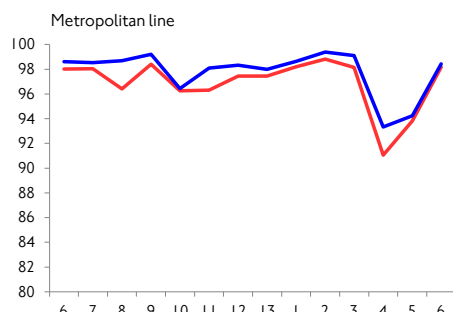
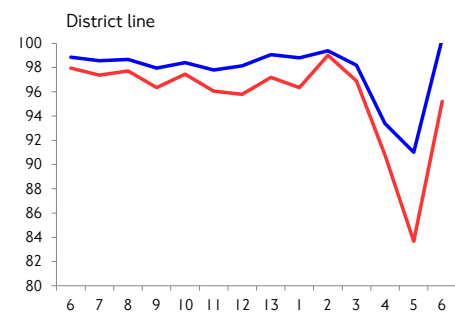
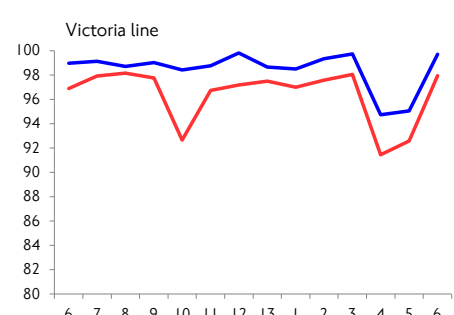
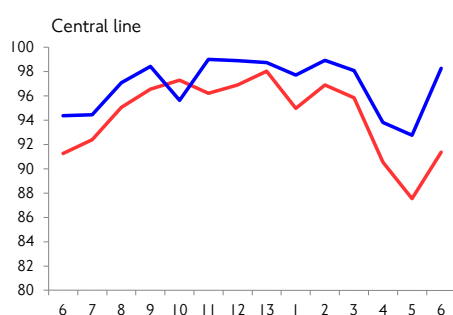
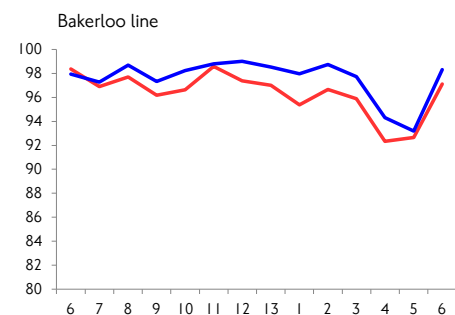
At a network level, the components of overall journey time broke down as follows this period:

- Platform wait time improved
- Access, egress & interchange time improved
- Unplanned closures time improved
- Ticket purchase time remained the same as last period
- Planned closures time remained the same as last period
- On-train journey time increased slightly



Percentage of scheduled kilometres operated, peak & off-peak – 2015/16 Period 6

— Peak — Off-peak



	Period 6		
	Peak	Off-peak	All Day
Bakerloo	97.1	98.3	98.0
Central	91.4	98.3	96.9
Victoria	98.0	99.7	99.2
District	95.2	100.4	99.0
Metropolitan	98.2	98.4	98.4
Circle & Hamm	96.8	96.7	96.7
Jubilee	98.2	98.6	98.5
Northern	99.1	98.7	98.8
Piccadilly	95.8	97.4	97.0
Waterloo & City	96.9	99.5	94.6
NETWORK	96.4	98.5	98.0

Higher percentages represent better performance

The graphs show the percentage of scheduled kilometres operated by trains in passenger service on each line during peak and off-peak periods.

Peak is defined as Monday to Friday 07:00 to 10:00 and 16:00 to 19:00, excluding public holidays. Scheduled kilometres operated are as defined on page 3.

The intensive levels of service operated at peak times, with high train service frequency, mean that disruption has a proportionately larger impact. For this reason, off-peak percentage of scheduled kilometres operated may be higher than peak.

The network percentage of scheduled kilometres operated during peak and off-peak hours improved in Period 6 to 96.4 per cent and 98.5 per cent respectively.

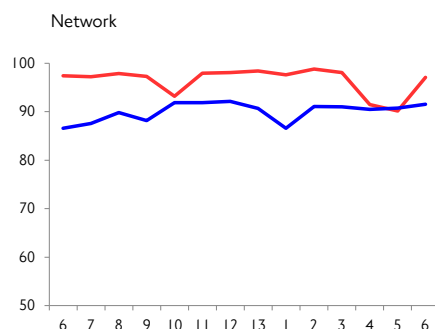
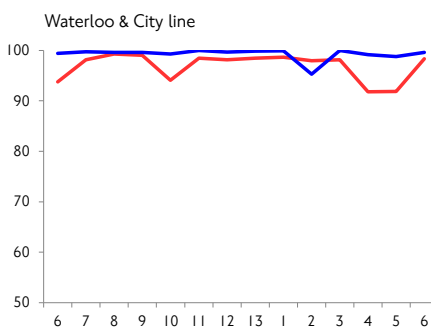
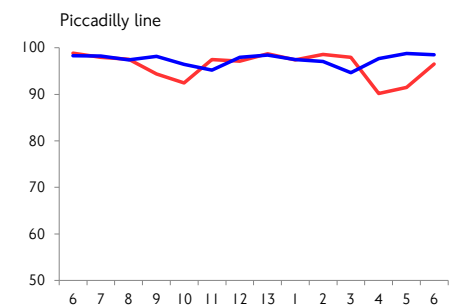
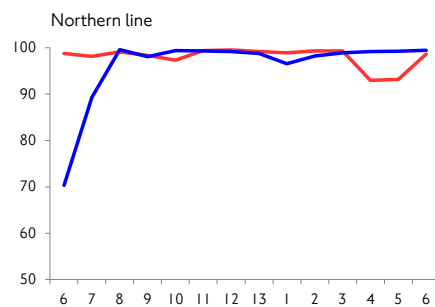
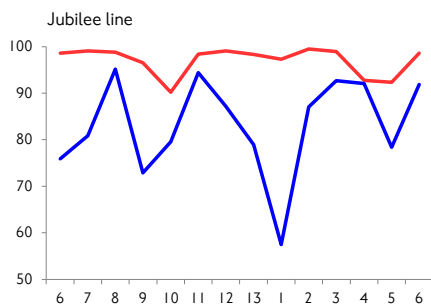
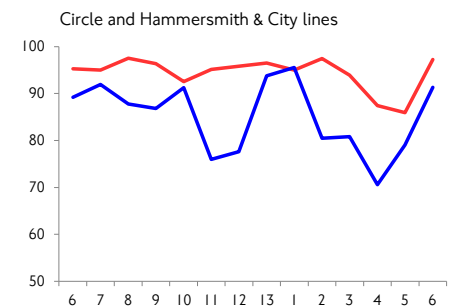
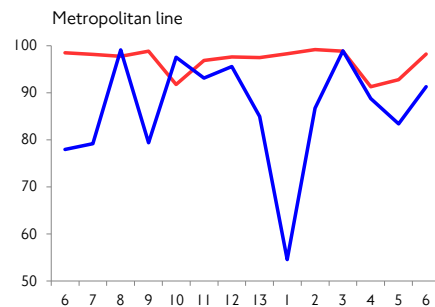
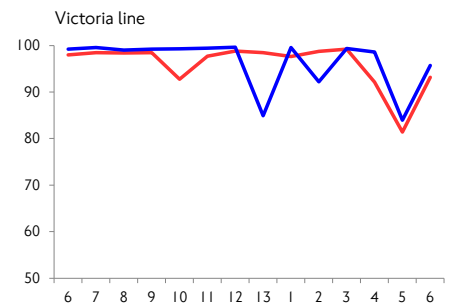
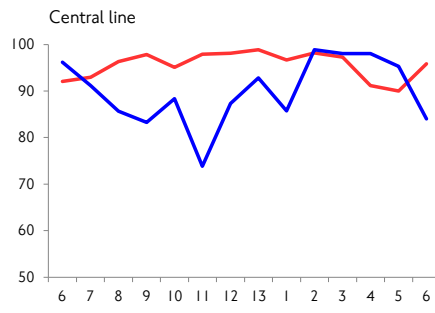
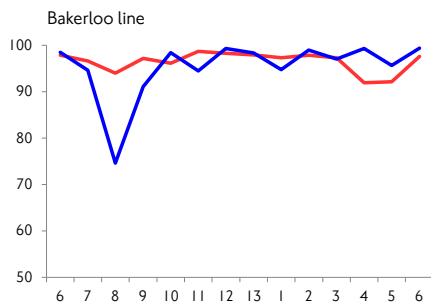
The incidents highlighted in the percentage of scheduled kilometres operated commentary (see page 3) also had an impact on peak and off-peak performance.

District line off-peak performance exceeded 100 per cent, which was the result of peak period trains running into the off-peak period.



Percentage of timetable operated, weekdays and weekends – 2015/16 Period 6

Weekday Weekend



	Period 6	
	Weekday	Weekend
Bakerloo	97.6	99.4
Central	95.8	84.1
Victoria	93.2	95.7
District	97.3	75.6
Metropolitan	98.2	91.3
Circle & Hamm	97.2	91.3
Jubilee	98.6	91.9
Northern	98.6	99.4
Piccadilly	96.5	98.5
Waterloo & City	98.4	99.6
NETWORK	97.1	91.6

Higher percentages represent better performance

The graphs show the percentage of timetabled kilometres operated by trains in passenger service on weekdays and weekends (including public holidays).

They illustrate the impact of weekend engineering works on service output.

The weekend percentage of timetabled kilometres operated was 91.6 per cent in Period 6.

Planned engineering works carried out in the period included:

- Track renewal at Putney Bridge, Wimbledon Park and between Hornchurch and Upminster Bridge, Crossrail works at Whitechapel and track and drainage replacement works at Hornchurch and Gunnersbury on the District line
- Track replacement works at Willesden Green and Wembley Park on the Jubilee and Metropolitan lines

- Track replacement works at East Acton and station improvement at Tottenham Court Road on the Central line
- Continuation and completion of new track layout at Walthamstow Central on the Victoria line

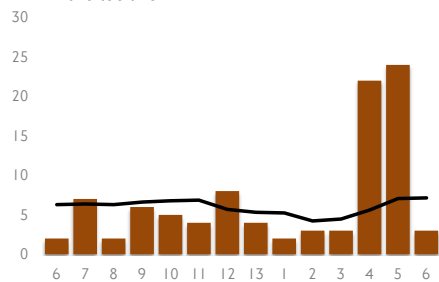
The Walthamstow blockade on the Victoria line also affected the weekday percentage of kilometres operated in the first week of the period.



Station closures - 2015/16 Period 6

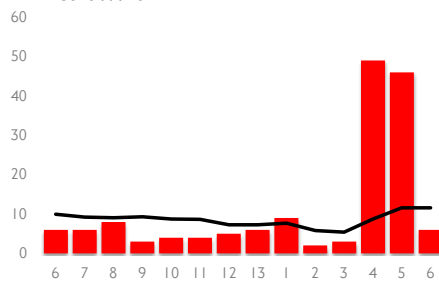
Actual — Moving annual average (MAA)

Bakerloo line

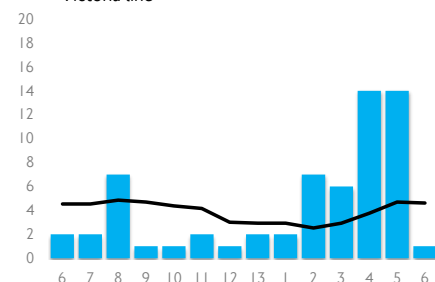


(Scale adjusted)

Central line

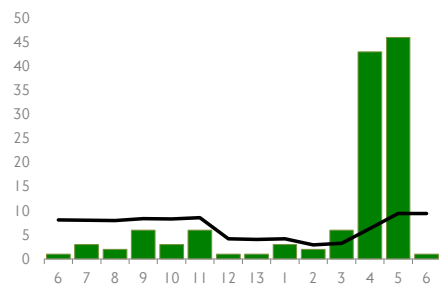


Victoria line



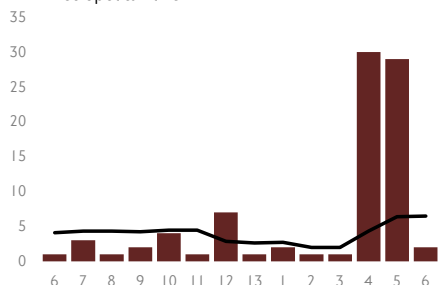
(Scale adjusted)

District line



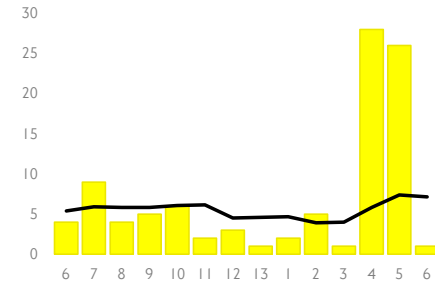
(Scale adjusted)

Metropolitan line



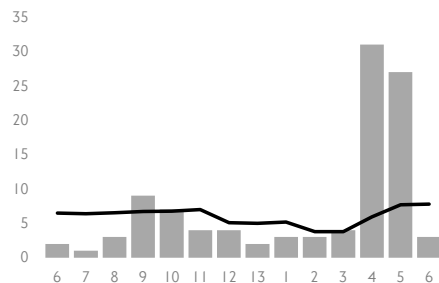
(Scale adjusted)

Circle and Hammersmith & City lines



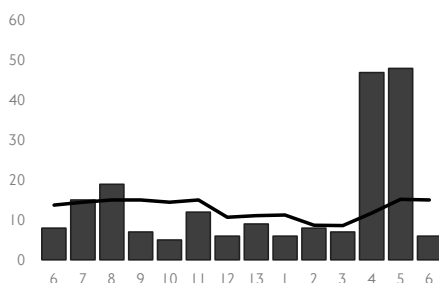
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Jubilee line

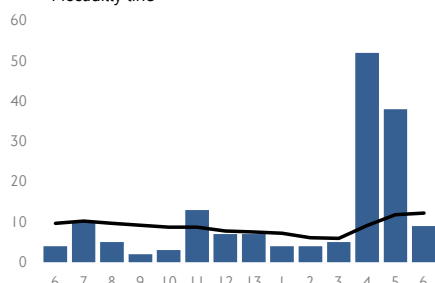


(Scale adjusted)

Northern line



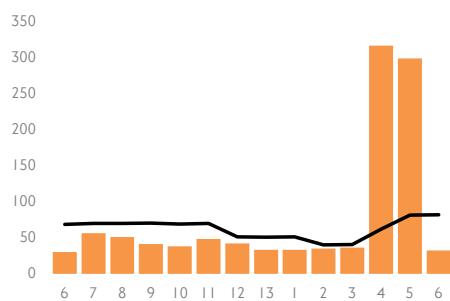
Piccadilly line



Waterloo & City line

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

Network



(Scale adjusted)

	Period 5	Period 6	MAA
Bakerloo	24	3	7
Central	46	6	12
Victoria	14	1	5
District	46	1	9
Metropolitan	29	2	6
Circle & Hamm	26	1	7
Jubilee	27	3	8
Northern	48	6	15
Piccadilly	38	9	12
Waterloo & City	n/a	n/a	n/a
NETWORK	298	32	81

Lower numbers represent better performance

The total number of unplanned full station closures measured throughout the whole of each service day.

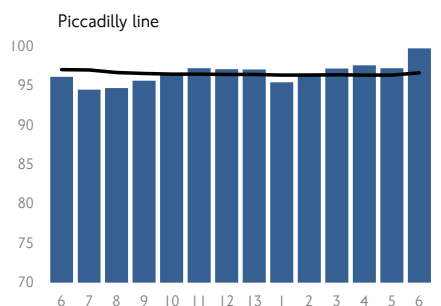
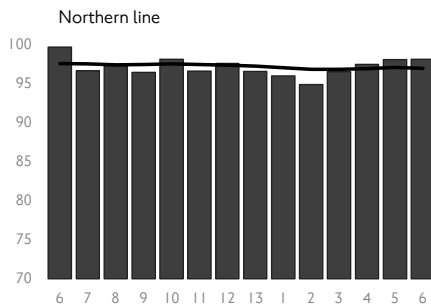
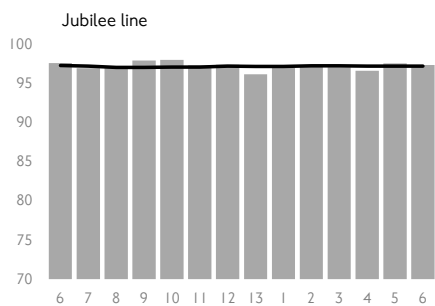
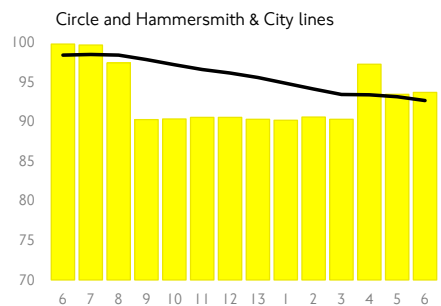
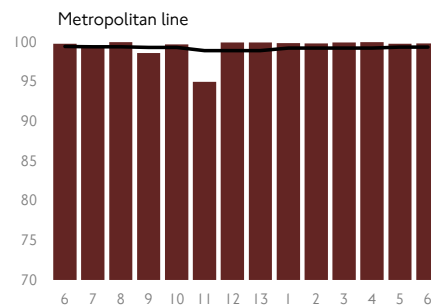
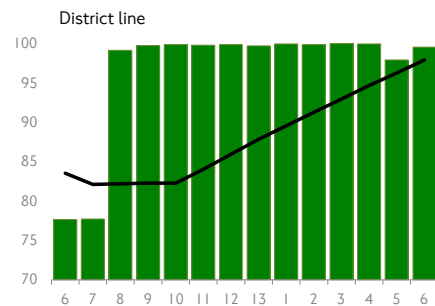
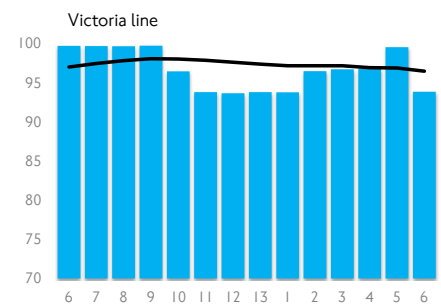
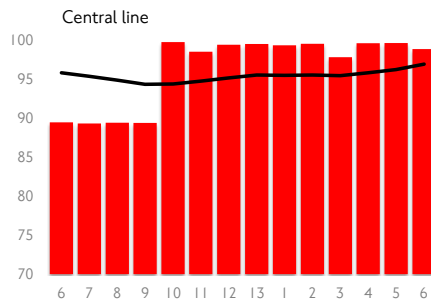
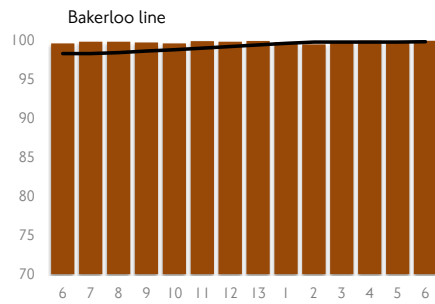
There were 32 station closures in Period 6, the lowest number since Period 6 of last year, with a total duration of 22 hours and 54 minutes.

This means that LU stations were open for 99.98 per cent of their scheduled hours.



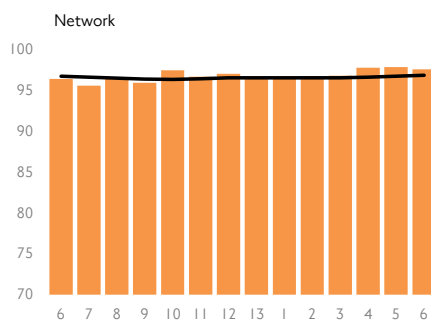
Escalator availability (including planned works) - 2015/16 Period 6

Actual — Moving annual average (MAA)



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	99.9	99.8
Central	99.7	98.9	96.9
Victoria	99.6	93.9	96.5
District	97.9	99.6	97.9
Metropolitan	99.8	99.9	99.4
Circle and H & C	93.5	93.7	92.7
Jubilee	97.5	97.3	97.2
Northern	98.0	98.1	96.9
Piccadilly	97.2	99.8	96.6
Waterloo & City	n/a	n/a	n/a
NETWORK	97.9	97.6	96.8

Higher percentages represent better performance

The total hours escalators were working, or available to work if required, as a percentage of total scheduled service hours.

Overall escalator availability in Period 6 was better than the moving annual average (MAA). All lines except the Victoria line did better than their MAA and availability on the Bakerloo and Metropolitan lines was 99.9 per cent, while Piccadilly line availability was 99.8 per cent.

Victoria line availability was impacted by planned refurbishment works at Walthamstow Central, and by a step chain failure at Warren Street that took one escalator out of service.

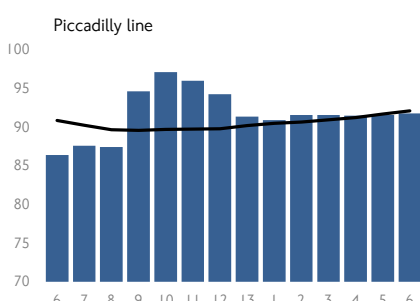
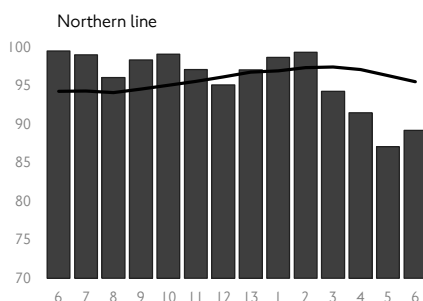
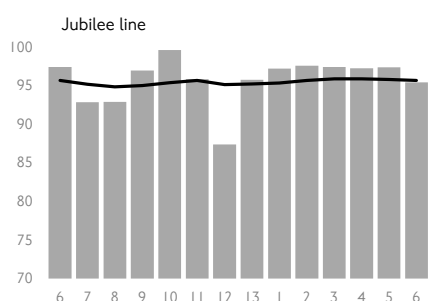
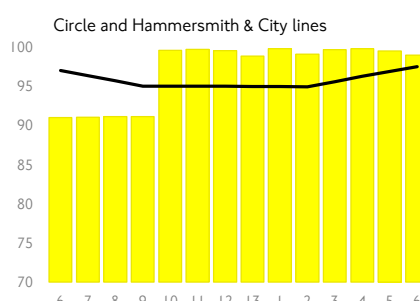
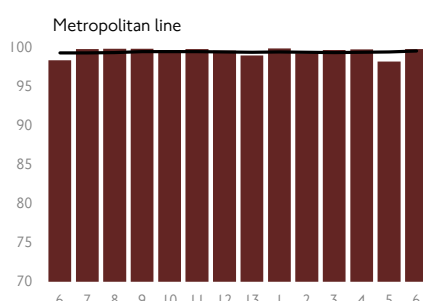
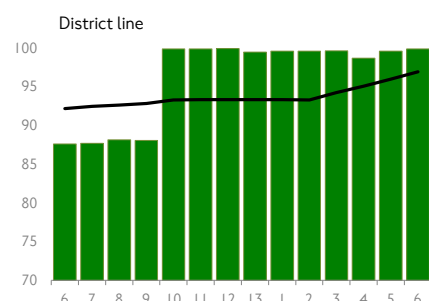
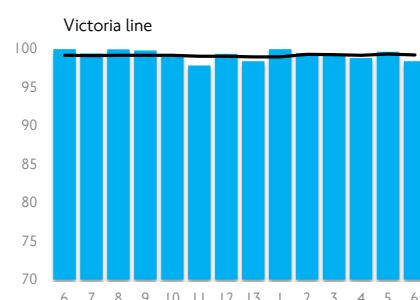
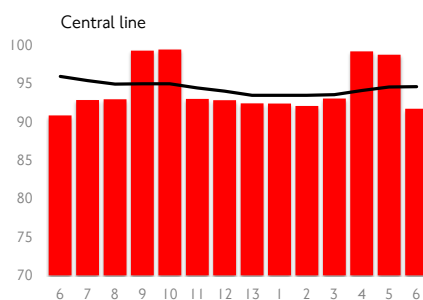
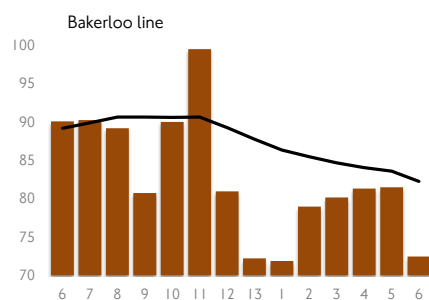
On page 11 is a list of escalators undergoing planned work in the period, including the:

- Jubilee line, where refurbishment of escalator 18 was completed at London Bridge
- Northern line, where refurbishment of escalators 4 and 5 continued at Tottenham Court Road
- Piccadilly line, where the replacement of escalator 5 at Heathrow Terminals 1, 2, 3 was completed
- Victoria line, where refurbishment of escalator 1 continued at Walthamstow Central



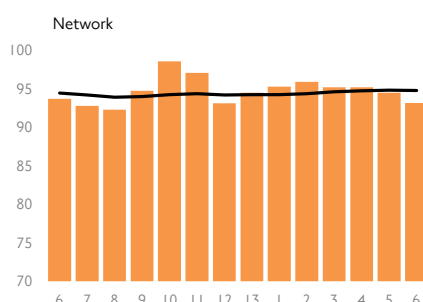
Lift availability (including planned works) – 2015/16 Period 6

Actual — Moving annual average (MAA)



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	81.5	72.5	82.2
Central	98.8	91.7	94.6
Victoria	99.6	98.4	99.2
District	99.6	99.9	96.9
Metropolitan	98.3	99.9	99.6
Circle and H & C	99.6	99.1	97.6
Jubilee	97.4	95.5	95.7
Northern	87.1	89.2	95.6
Piccadilly	91.6	91.7	92.1
Waterloo & City	n/a	n/a	n/a
NETWORK	94.5	93.2	94.8

Higher percentages represent better performance

The total hours lifts were working, or available to work if required, as a percentage of total scheduled service hours.

Although overall lift availability in Period 6 was below the moving annual average (MAA), the District, Metropolitan and Circle and Hammersmith & City lines all performed better than their respective targets. On the District line lift availability was 99.9 per cent.

On the Bakerloo line, the replacement of two lifts at Elephant & Castle, which impacted on performance in previous periods, was successfully completed. The refurbishment of a third lift at Elephant & Castle also commenced in Period 6.

Central line performance was affected this period by a lift being taken out of service at Bank for unscheduled rope replacement works which have now been successfully completed. The Victoria line was affected by hydraulic pump related issues with a lift at Brixton, while the Jubilee line narrowly missed its MAA due to a lift failure at London Bridge.

On the Northern line, Tufnell Park station is currently closed while the two 40 year old lifts are being replaced. Both lifts are being replaced at the same time as this will result in works taking approximately nine months to complete rather than 20 months if the lifts were replaced individually while the station remained open.

On the Piccadilly line, refurbishment works are continuing on two lifts at Covent Garden, which are due to be completed in November.

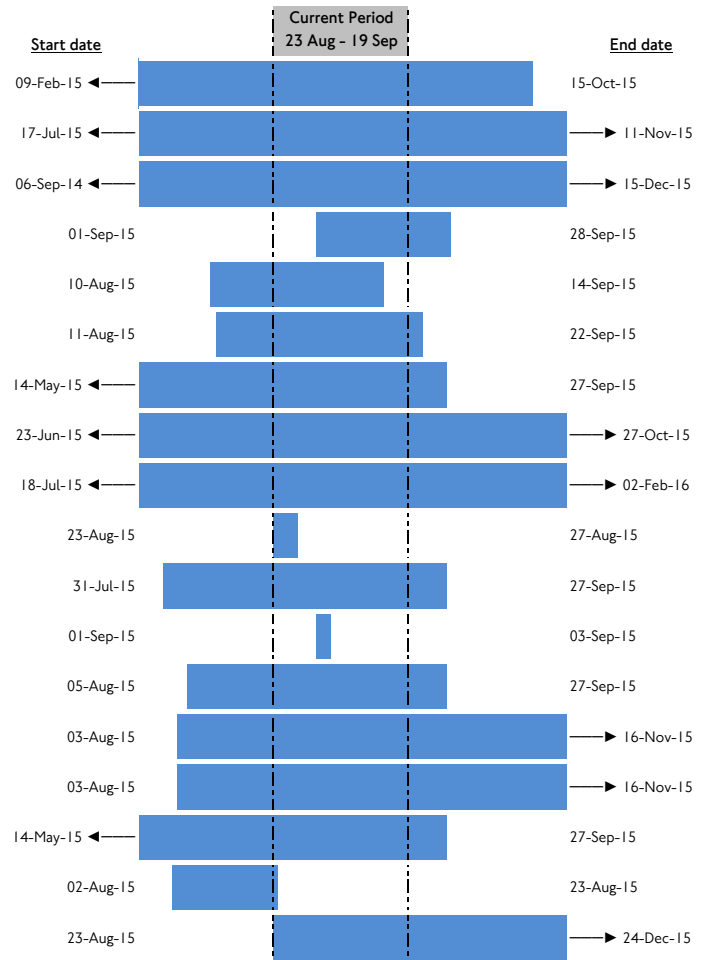
On page 11 is a list of lifts undergoing planned works in the period.



Escalators and Lifts undergoing planned works in the period

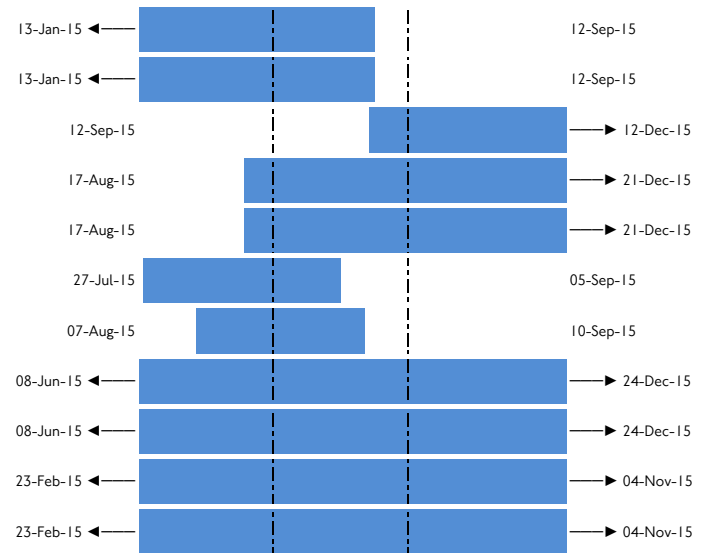
Escalators

Line	Station	Lift/Esc no.	Description of work
Central	Greenford*	n/a	Stair & Incline Lift Replacement
Circle And Hammersmith	Kings Cross St. Pancras*	9	Refurbishment
Circle And Hammersmith	Moorgate	3	Constructing new opening in cross passage
Jubilee	Canary Wharf*	7	Intervention
Jubilee	London Bridge*	18	Refurbishment
Jubilee	Southwark*	3	Refurbishment
Jubilee	St. Johns Wood*	3	Refurbishment
Jubilee	Westminster*	7	Refurbishment
Northern	Angel*	4	Refurbishment
Northern	Camden Town*	1	Intervention
Northern	Clapham South*	1	Intervention
Northern	Clapham South*	3	Intervention
Northern	Euston*	1	Refurbishment
Northern	Tottenham Court Road*	4	Refurbishment
Northern	Tottenham Court Road*	5	Refurbishment
Piccadilly	Green Park*	5	Refurbishment
Piccadilly	Heathrow Airport (T1,2,3)*	5	Replacement
Victoria	Walthamstow Central*	1	Refurbishment



Lifts

Bakerloo	Elephant & Castle*	3	Replacement
Bakerloo	Elephant & Castle*	4	Replacement
Bakerloo	Elephant & Castle*	6	Refurbishment
Jubilee	Westminster*	3	Refurbishment
Jubilee	Westminster*	4	Refurbishment
Northern	Finchley Central*	1	Intervention
Northern	Hendon Central*	1	Intervention
Northern	Tufnell Park*	1	Replacement
Northern	Tufnell Park*	2	Replacement
Piccadilly	Covent Garden*	3	Refurbishment
Piccadilly	Covent Garden*	4	Refurbishment



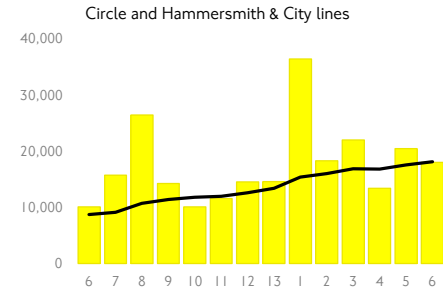
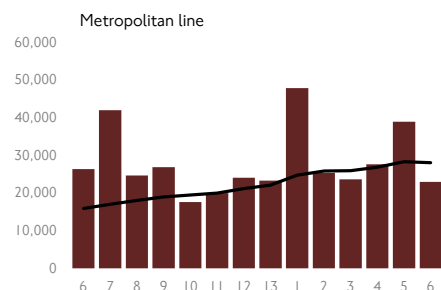
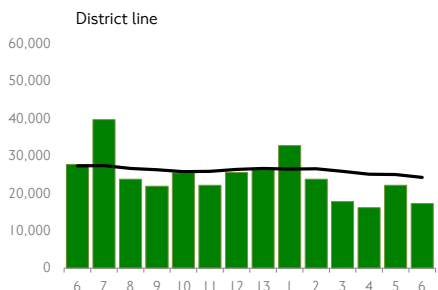
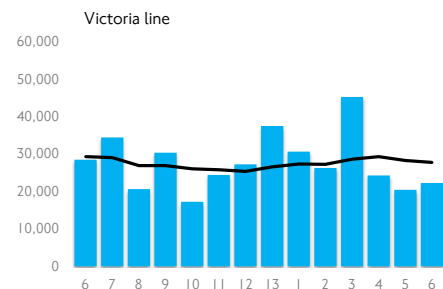
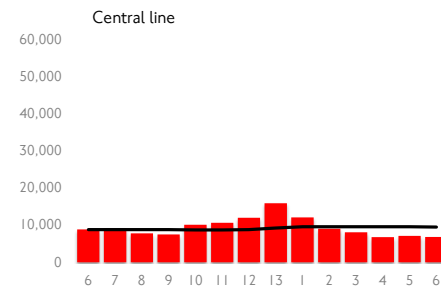
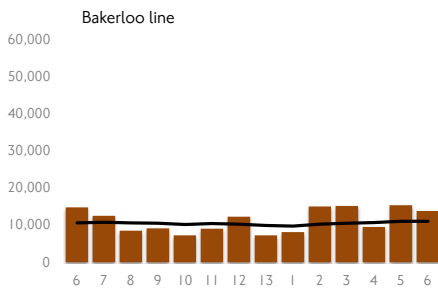
*Lift and escalator works as part of projects



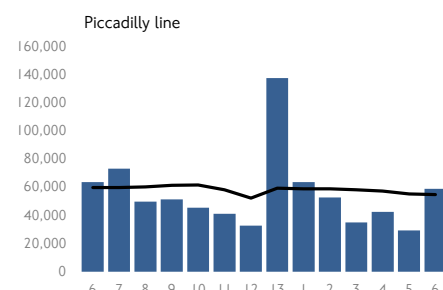
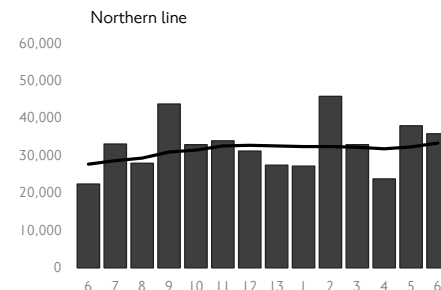
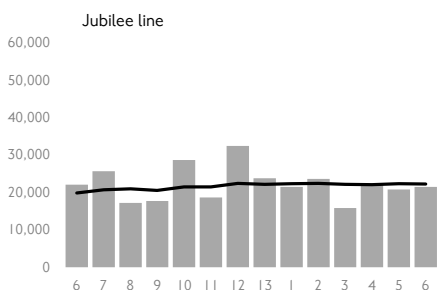
Rolling stock mean distance between failures – 2015/16 Period 6

Actual train kilometres between failures

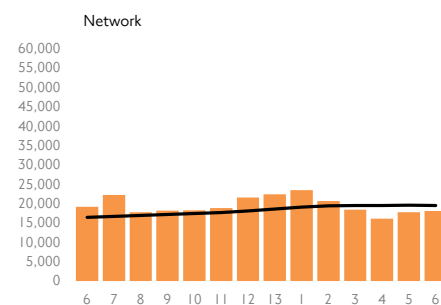
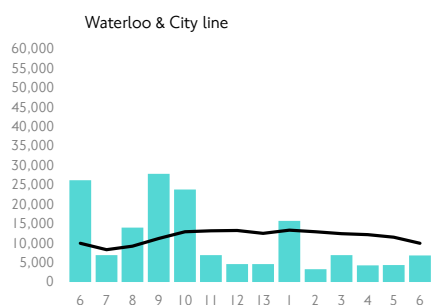
Moving annual average (MAA)



(Scale adjusted)



(Scale adjusted)



	Period 5	Period 6	MAA
Bakerloo	15,324	13,820	10,995
Central	7,103	6,805	9,448
Victoria	20,413	22,258	27,754
District	22,142	17,236	24,193
Metropolitan	38,850	22,913	28,017
Circle & Hamm	20,501	18,052	18,160
Jubilee	20,793	21,469	22,268
Northern	37,977	35,852	33,364
Piccadilly	29,281	58,817	54,787
Waterloo & City	4,344	6,819	10,008
NETWORK	17,808	18,126	19,535

Higher numbers represent better performance

Mean distance between failures (MDBF) is calculated as the number of train kilometres operated in customer service, divided by the number of rolling stock related service disruptions of two minutes or more.

Where new stock is being or has been introduced, as on the Circle & Hammersmith and District lines, MDBF trends reflect the combined performance of stocks in line with the train service performance shown earlier in this report.

This includes events whose root cause we're still diagnosing. Once we know the cause, we sometimes need to change figures retrospectively.

Overall network MDBF improved for the second period in a row, with the Victoria, Jubilee, Piccadilly and Waterloo & City lines all performing better than in Period 5.

The Bakerloo, Northern and Piccadilly lines all bettered their respective moving annual average (MAA), while the Circle and Hammersmith & City line came very close to meeting its MAA.

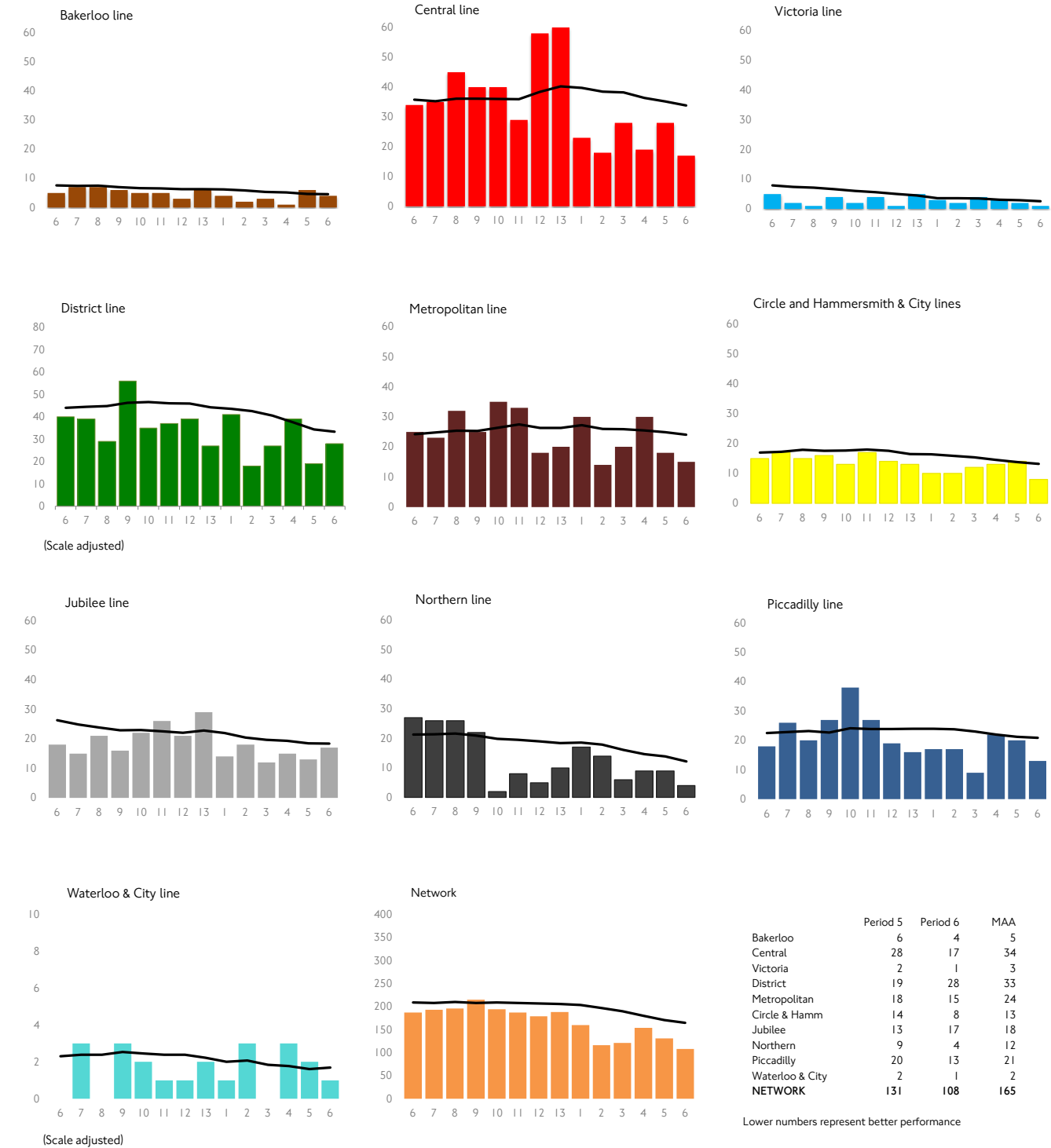
Central line performance was impacted by traction related issues, partly due to action short of a strike by fleet maintenance staff, which ended towards the end of the period. On the District line issues with D stock trains affected performance in Period 6 – these

trains are currently being phased out and replaced with S stock. Metropolitan line performance was also lower than in the previous period. Air supply related issues on S stock trains, which impacted on the line's performance, are currently being investigated.



Signal and point related delays, over two minutes - 2015/16 Period 6

Actual Moving annual average (MAA)



The number of train control service disruptions of two minutes or more.

This includes events whose root cause we're still diagnosing. Once we know the cause, we sometimes need to change figures retrospectively.

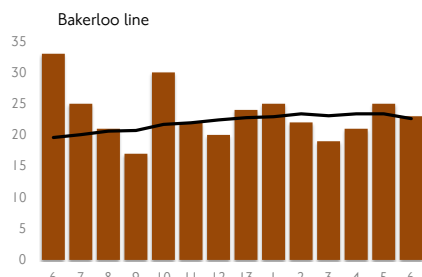
The number of signal and points related delays decreased in Period 6 for the second period in a row and remained well below the moving annual average (MAA).

The network as a whole and all lines did better than their respective MAA, with the number of delays reported at its lowest in 13 periods.

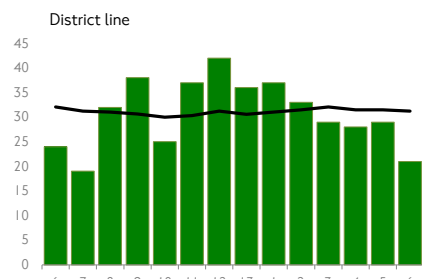
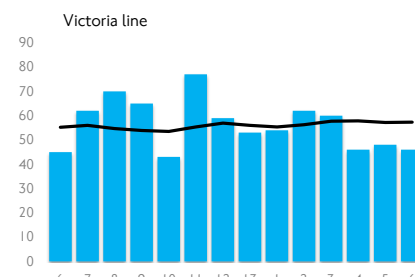
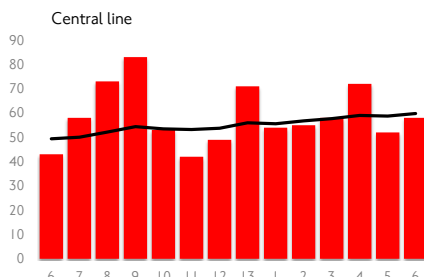


Customer & public related delays, over two minutes – 2015/16 Period 6

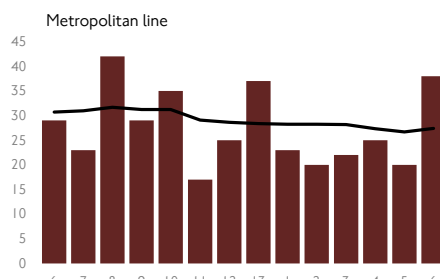
Actual — Moving annual average (MAA)



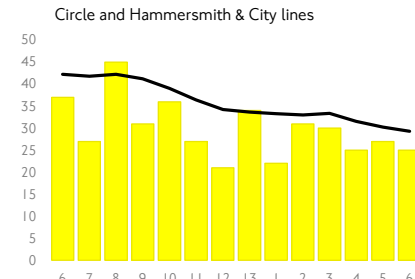
(Scale adjusted)



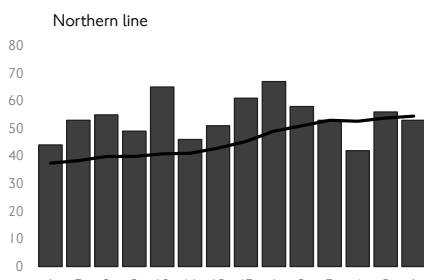
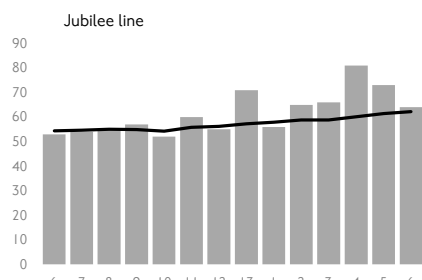
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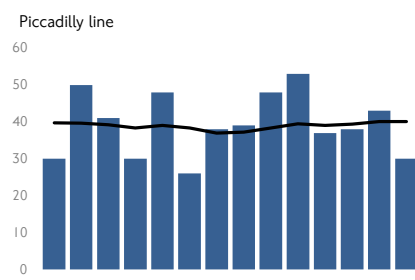
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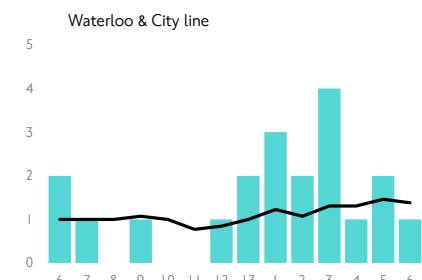
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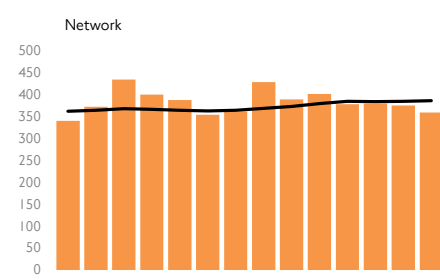
(Scale adjusted)



(Scale adjusted)



(Scale adjusted)



	Period 5	Period 6	MAA
Bakerloo	25	23	23
Central	52	58	60
Victoria	48	46	57
District	29	21	31
Metropolitan	20	38	27
Circle & Hamm	27	25	29
Jubilee	73	64	62
Northern	56	53	55
Piccadilly	43	30	40
Waterloo & City	2	1	1
NETWORK	375	359	386

Lower numbers represent better performance

The number of customer related service disruptions of two minutes or more. We've replaced track delay data with this page because we consistently have more disruption that's customer and public related than from track issues.

Track delays are still available in the [Performance data almanac](#).

Customer and public related delays include incidents where customers become ill on a train, customers holding the doors open, accidental track obstruction and customers or members of the public on the track.

This includes events whose root cause we're still diagnosing. Once we know the cause, we sometimes need to change figures retrospectively.

The overall number of customer and public related delays decreased by four per cent in Period 6 compared to the previous period. The network, Bakerloo, Central, Victoria, District, Circle and Hammersmith & City, Northern, Piccadilly and Waterloo & City lines all matched or bettered their moving annual average (MAA).

Jubilee line performance improved in Period 6, and the line came close to meeting its MAA. On the Metropolitan line, there was a rise in the number of customer illness related incidents which impacted on performance this period.



Total lost customer hours (LCH), all causes - 2015/16 Period 6

Actual (line colour) Moving annual average (MAA)



Total lost customer hours resulting from all service disruption incidents of two minutes or more, due to all causes including those outside LU's direct control but excluding lost customer hours due to planned works.

The top five highest LCH incidents by line in this period are shown on page 17.

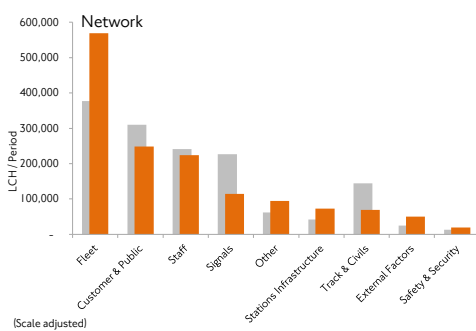
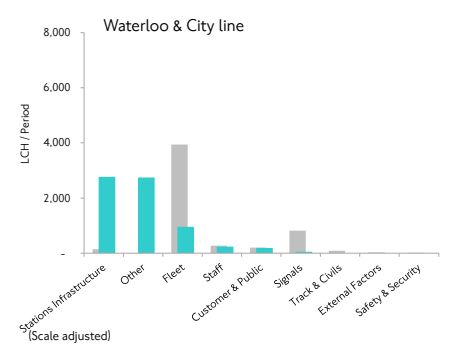
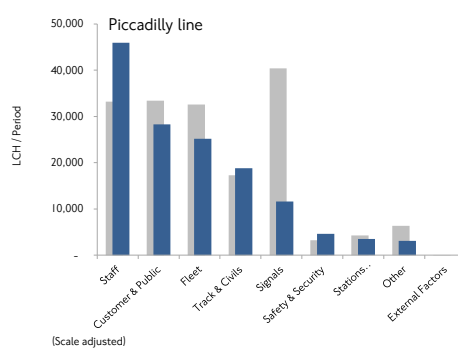
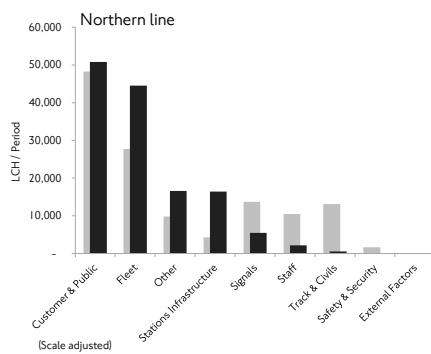
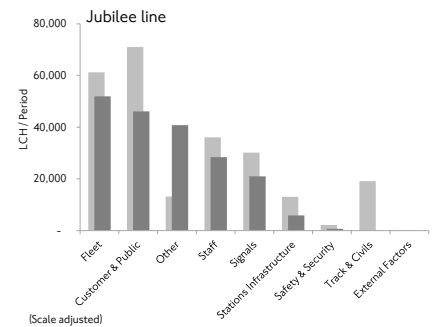
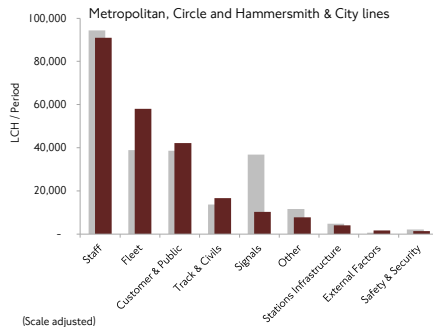
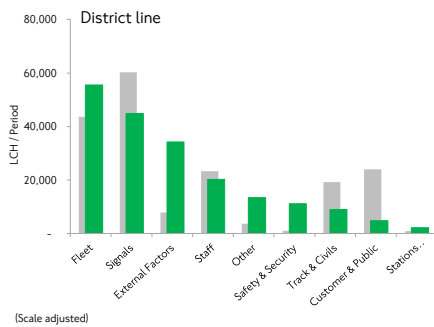
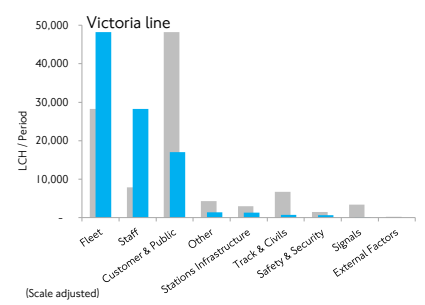
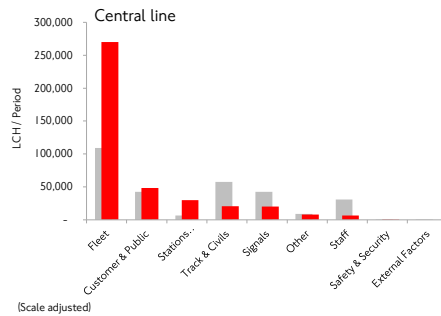
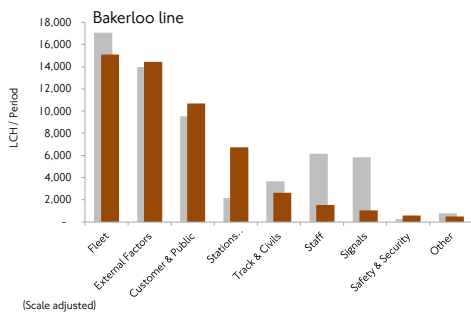
Network reliability measured in lost customer hours (LCH) was 1.67million in Period 6, with action short of a strike by fleet maintenance staff accounting for 0.21 million LCH.

Fleet related incidents impacted on overall Central line performance this period, while the Jubilee line was affected by a signalling system related failure at Stratford on 25 August.

With the exception of the Central and District lines, all lines did better than their moving annual average (MAA). The action short of a strike by fleet maintenance staff affected the Central, District, Circle and Hammersmith & City lines.



Lost customer hours (ranked by cause excluding industrial action) - 2015/16 Period 6



13 period rolling average
Line Colour Current period

To each incident causing service disruption we give a lost customer hour (LCH) value and a cause code. The graphs on this page summarise the LCH values by the principal cause code groupings, and compare current period performance with average performance over the past year (13 periods). The results are ranked for each line and the network according to the current period values.

Top five highest lost customer hours (LCH) incidents by line - 2015/16 Period 6

Line	Location	Date	LCH	Cause
Bakerloo	QUEENS PARK	27-Aug-15	6,839	External Factors
Bakerloo	PADDINGTON	04-Sep-15	5,904	Stations Infrastructure
Bakerloo	KENTON	26-Aug-15	2,802	External Factors
Bakerloo	OXFORD CIRCUS	10-Sep-15	2,430	Customer & Public
Bakerloo	STONEBRIDGE PARK DEPOT	15-Sep-15	2,424	Fleet
Central	BOND STREET	02-Sep-15	20,221	Fleet
Central	NORTH ACTON	11-Sep-15	19,516	Track & Civils
Central	ST. PAULS	11-Sep-15	11,665	Fleet
Central	BANK and MONUMENT	02-Sep-15	10,712	Stations Infrastructure
Central	BANK and MONUMENT	25-Aug-15	9,509	Other
Victoria	STOCKWELL	01-Sep-15	9,859	Staff
Victoria	SEVEN SISTERS	24-Aug-15	9,412	Staff
Victoria	SEVEN SISTERS	10-Sep-15	7,039	Fleet
Victoria	SEVEN SISTERS	25-Aug-15	4,596	Staff
Victoria	SEVEN SISTERS	16-Sep-15	3,707	Fleet
District	TURNHAM GREEN	26-Aug-15	24,684	External Factors
District	BARKING	24-Aug-15	10,670	Safety & Security
District	BLACKFRIARS	02-Sep-15	9,448	Other
District	PUTNEY BRIDGE	14-Sep-15	8,418	Signals
District	GLOUCESTER ROAD	11-Sep-15	7,597	Signals
Met, Circle & H&C	BARBICAN	15-Sep-15	11,705	Fleet
Met, Circle & H&C	FARRINGDON	01-Sep-15	10,217	Fleet
Met, Circle & H&C	KINGS CROSS ST. PANCRAS	09-Sep-15	7,427	Track & Civils
Met, Circle & H&C	UPTON PARK	14-Sep-15	7,392	Customer & Public
Met, Circle & H&C	FINCHLEY ROAD	16-Sep-15	6,581	Customer & Public
Jubilee	STRATFORD	25-Aug-15	47,712	Signals
Jubilee	WEMBLEY PARK	24-Aug-15	12,988	Fleet
Jubilee	WEST HAMPSTEAD	03-Sep-15	9,202	Customer & Public
Jubilee	LONDON BRIDGE	18-Sep-15	5,311	Customer & Public
Jubilee	WEMBLEY PARK	07-Sep-15	4,125	Signals
Northern	TOOTING BROADWAY	01-Sep-15	14,038	Signals
Northern	KENTISH TOWN	23-Aug-15	12,375	Stations Infrastructure
Northern	KENNINGTON	17-Sep-15	8,680	Customer & Public
Northern	KENNINGTON	16-Sep-15	8,474	Other
Northern	KENNINGTON	10-Sep-15	4,678	Customer & Public
Piccadilly	FINSBURY PARK	09-Sep-15	6,550	Track & Civils
Piccadilly	HOUNSLOW WEST	15-Sep-15	6,330	Customer & Public
Piccadilly	TURNPIKE LANE	19-Sep-15	5,805	Customer & Public
Piccadilly	SOUTHGATE	26-Aug-15	4,002	Track & Civils
Piccadilly	ARNOS GROVE	03-Sep-15	3,399	Signals
Waterloo and City	WATERLOO DEPOT (Waterloo & City)	25-Aug-15	616	Fleet
Waterloo and City	BANK and MONUMENT	16-Sep-15	186	Customer & Public
Waterloo and City	WATERLOO	25-Aug-15	106	Fleet
Waterloo and City	WATERLOO	28-Aug-15	104	Staff
Waterloo and City	BANK and MONUMENT	16-Sep-15	101	Fleet



Glossary and explanations of measures & terms

How to read the charts

Except where stated:

- the x-axis of all charts relates to four-week periods
- the line and network charts reflect the industrial action that impacted on performance in Period:
 - 6 2014/15 on the Central and Waterloo & City lines
 - 9 2014/15 on the Northern line
 - 13 2014/15

Customer satisfaction

To measure the level of customer satisfaction with the service provided by London Underground (LU) we use a continuous face-to-face survey. An external market research company is contracted to carry out around 2,500 interviews every quarter.

We ask customers to rate their level of satisfaction with the service they experienced at their station of origin and last line travelled on. The ratings are scored on a scale of 0 to 10 for 19 measures covering eight train and 11 station attributes, and also for one overall evaluation question. Results are presented as the average mark out of 10, multiplied by 10 and rounded to the nearest integer.

Passenger journeys

Passenger journeys is the number of journeys made by fare-paying passengers (including holders of Freedom Passes) on the Tube.

Percentage of scheduled kilometres operated

Percentage of scheduled kilometres operated is measured over the whole of the traffic day, seven days per week. Actual kilometres operated are shown as a percentage of scheduled kilometres, which are the distances timetabled to be run, adjusted for planned short-term changes to the timetable, such as weekend engineering works.

Journey time & excess journey time (EJT)

Journey time is a way of measuring LU's service performance. We break down journeys into stages and give each one:

- A scheduled time length, so we can say how long a given journey should take if everything goes as planned
- A value of time (VOT) based on how customers feel about that bit of the journey, eg going up an escalator has a VOT of 1.5, whereas walking up stairs has a VOT of 4, because it makes the perceived journey time longer

These are the stages of a journey:

- Time from station entrance to platform
- Ticket queuing and purchase time
- Platform wait time
- On-train time
- Platform to platform interchange
- Time from platform to station exit

In each period, actual journey times are measured and then compared to the schedule. The difference between the two is the measure of lateness – referred to as excess journey time (EJT). EJT is therefore a measure of how efficiently LU is providing its scheduled or 'stated' service: the more reliable the service the lower the EJT. The calculation includes the impact of planned closures.

Total journey time

Total journey time is the sum of:

- Expected or scheduled journey time and
- Excess journey time (see above)

Percentage of schedule (peak / off-peak)

The peak / off-peak analysis is part of 'Percentage of scheduled kilometres operated' described above. It splits:

- Peak times, defined as 07:00 – 10:00 and 16:00 – 19:00 Monday to Friday, excluding public holidays
- Off-peak, for all other times

Its purpose is to measure separately performance when demand on the system is at its highest in terms of passenger numbers and number of trains in service.

Percentage of timetable (weekdays / weekends)

This shows how much of LU's timetabled service operates on:

- Weekdays – Monday to Friday, excluding public holidays
- Weekends – Saturday / Sunday and public holidays

It illustrates the impact that weekend engineering works have on LU's service, and so gives a more representative illustration of the level of service offered to the customer.

Station closures

The number of unplanned full station closures measured throughout the whole of each service day. To count as a full station closure, all station entry and exits must be closed and trains non-stopping.

Examples of causes of station closures include:

- Absence or shortage of staff
- Failure of lifts or escalators
- Security alerts
- Customer action
- Fire alert
- Police request
- External factors, eg incidents near the station

For management purposes each station on the network is allocated to a Tube line and closures are reported by line.

Escalator availability

Escalator availability is based on the total hours escalators were working, or available to work if required, as a percentage of total scheduled service hours. Unavailable time includes:

- Planned works
- Time out of service due to faults

Machines switched off during off-peak times to conserve energy are considered to be available (ie they'll work if needed).

Reporting of escalator performance by Tube line is based on the allocation of each station to a line, rather than the line to which the escalator gives access. For example, the failure of an escalator giving access to the Northern line platforms at King's Cross station is recorded in the results for the Circle & Hammersmith line, which is responsible for managing King's Cross.



Lift availability

Lift availability is based on the total hours lifts were working, or available to work if required, as a percentage of total scheduled service hours. Unavailable time includes:

- Planned works
- Time out of service due to faults

The measure includes all passenger service lifts, both those that:

- Are the principal access to platforms for all passengers, and
- Provide secondary access for passengers who find stairs or escalators impractical

Reporting lift availability by Tube line follows the same principle as for escalator availability above.

Rolling stock mean distance between failures (MDBF)

Rolling stock mean distance between failures (MDBF) is the number of train kilometres operated in customer service, divided by the number of rolling stock related service disruptions of two minutes or more.

Sometimes we later find that the cause of a service disruption isn't what we first thought, and so we need to change the figures retrospectively. For instance, a disruption we first attributed to rolling stock we may later find was due to staff error or customer action.

Signal and points related delays under two minutes

The number of signal & points (train control) related service disruptions of two minutes or more.

As with MDBF above, if we later find that the cause of a service disruption is different, it may mean the figures change.

Track related delays over two minutes

The number of track-related service disruptions of two minutes or more.

As with MDBF above, if we later find that the cause of a service disruption is different, it may mean the figures change.

Lost customer hours (LCH)

Lost customer hours (LCH) is the total extra journey time, measured in hours, experienced by Underground customers as a result of all service disruptions with durations of two minutes or more.

For example, an incident at Oxford Circus during a Monday to Friday peak gives rise to a much higher number of lost customer hours than an incident of the same length in Zone 6 on a Sunday morning.

As we review incidents, we may need to change LCH figures retrospectively.

Service disruption

Disruption occurs where an incident causes the train service or the station service to be interrupted.

Cause code categories

As well as calculating the LCH for each service disruption, we categorise it by cause. For the purpose of this report, we've summarised LU's 300-plus detailed analysis codes into these groups:

- Customers & public: setting off alarms (malicious or spurious), robbery / theft, accidental track obstruction, suicide attempt, trespass on railway, vandalism, drunks, lost children, crowding, altercations / fights between customers, customers holding doors open, customer injury boarding / alighting trains, person ill on train
- External factors: incidents caused by external parties or factors outside LU's control, for example bridge strikes, fire in premises next to the railway, local power supply failure, police request
- Fleet: trains defective in service or not available to enter service from the depot when required
- Safety & security: fire and security alerts (eg unattended bags, fire alarms set off) station evacuations including exercises (defects of fire / safety equipment are included under stations infrastructure)
- Signals: failures of signal equipment, control systems for signals and points, tunnel telephones, tripcock testers, including overruns of works
- Staff: absence, shortage, illness, accident, errors, staff taxi delays, refusal to work on health and safety grounds, industrial action
- Station infrastructure: failure of station equipment (eg escalators, lifts, lighting, fire equipment), overruns of station project works
- Track & civils: defects of track, bridges and earth structures and drainage, track fires, track obstructions and vegetation impacts, overruns of track or civil engineering work

Reporting periods

In common with the rest of the rail industry, each year LU has 13 reporting periods of 28 days, from April to March. The lengths of periods 1 and 13 may however vary to align with the financial year end of 31 March. These are the dates of the reporting periods for the financial years 2014/15 and 2015/16:

2014/15

1 April - 26 April 2014
27 April - 24 May 2014
25 May - 21 June 2014
22 June - 19 July 2014
20 July - 16 August 2014
17 August - 13 September 2014
14 September - 11 October 2014
12 October - 8 November 2014
9 November - 6 December 2014
7 December 2014 - 3 January 2015
4 January - 31 January 2015
1 February - 28 February 2015
1 March - 31 March 2015

2015/16

1 April - 2 May 2015
3 May - 30 May 2015
31 May - 27 June 2015
28 June - 25 July 2015
26 July - 22 August 2015
23 August - 19 September 2015
20 September - 17 October 2015
18 October - 14 November 2015
15 November - 12 December 2015
13 December 2015 - 9 January 2016
10 January - 6 February 2016
7 February - 5 March 2016
6 March - 31 March 2016

