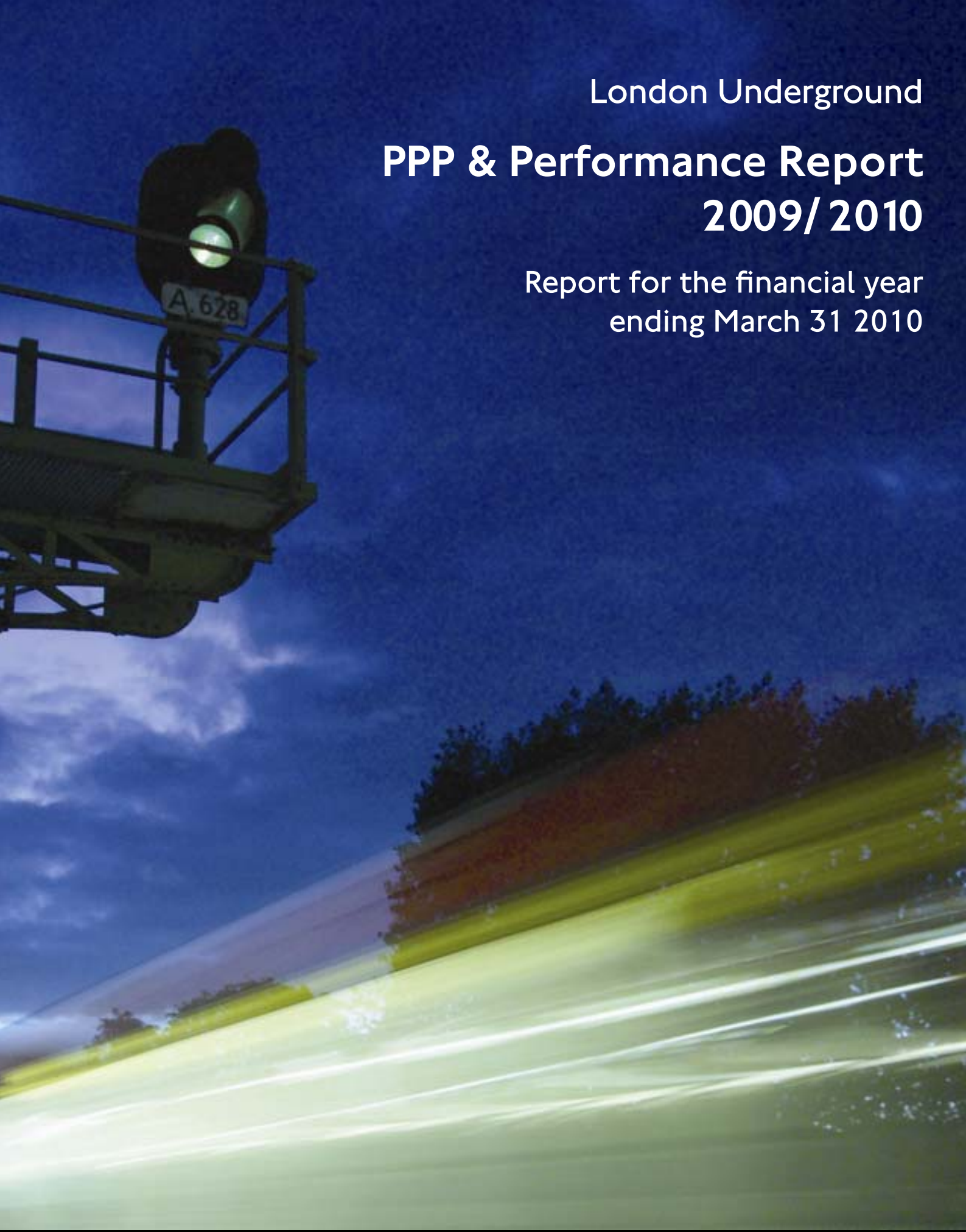


London Underground

PPP & Performance Report 2009/2010

Report for the financial year ending March 31 2010

MAYOR OF LONDON

Transport for London

UNDERGROUND

Contents

London Underground PPP and Performance Report 2009/2010

Report for the financial year ending 31st March 2010

1. Foreword

Mike Brown

As noted in the foreword to last year's report, 2009/10 was set to be a year of delivery and resolution, as the major line upgrades finally started to deliver, as promised at the PPP's inception, while the first Periodic Review was set to determine the way forward for the next seven and a half years.

Ultimately, things turned out differently than originally planned. However, at the start of 2010/11, despite the tough economic times and the continuing delays to the Jubilee line upgrade, there is good reason to look forward with optimism. The acquisition of the shares in Tube Lines has seen the company become a wholly-owned subsidiary of TfL. This conclusion to the slow progress of the Periodic Review over the past year gives us a new platform on which to build, and a clearer picture of the way forward. We must ensure that in escaping from the ambiguities and complexities of the PPP, we take full advantage of the opportunities that these new arrangements present.

2009/10 was marked by good and sustained daily maintenance performance across all areas (both Tube Lines and LU Maintenance).

Many investment projects also made good progress. The roll out of the Victoria line's new fleet of trains continued after the first train entered passenger service in July 2009. In October, the Underground's first ever air-conditioned, walk-through train was delivered to London, successfully tested and will enter service on the north end of the Metropolitan line in the summer of 2010, with the subsequent roll out of a fleet of 191 such trains across all the Sub-Surface lines.

Alongside these new trains, good progress was made on the new signalling projects under TfL's control which deliver the significant capacity increases. The Victoria line's new signalling has been installed and is able to be tested and operated "overlaid" on the existing signalling while

the rollout of the new trains continues. On the sub-surface lines — some 40% of the network — the signalling upgrade is at a much earlier stage but important milestones were still achieved this year. The tender specification for the contract to install the new signalling was issued in July 2009, and following the receipt of bids from suppliers, the evaluation process continues with two suppliers now short-listed for the final bid stage. The delivery of this will renew some of the most outdated and unreliable equipment on the network, introducing a unified and integrated system; also, it will demonstrate a new approach to delivering signalling upgrade works — one of the key requirements for the tenders was that the requirement for weekend or other closures is minimised; finally, it will be an important benchmark of delivery in the post-PPP world, being the first line upgrade project not delivered by or inherited from one of the PPP infracos. It is planned to let the contract early in 2011.

Other key delivery milestones were achieved outside the PPP; the final part of the redevelopment of King's Cross St. Pancras station was put in place — the new North ticket hall, on time and on budget. Other major station programmes, key to the Tube's ability to handle the predicted increase in usage that the line upgrades will allow, also moved forward: at Tottenham Court Road, demolition work was completed and the work to build the new, massively expanded station began. Meanwhile, the contract award for the similarly large scale project at Victoria was confirmed in March this year.

So there was much renewal work to note with satisfaction. This is tempered with less good news on the biggest, and perhaps most significant, renewal prize that the year should have brought — the completion of the Jubilee line upgrade. At the time of writing, just three weeks after the acquisition of Tube Lines we still lack clarity on when it will be completed but, despite various promises over the course of the year of December 2009, May 2010, then October 2010, what is now clear is that the chances of completion even by the end of 2010 look slim. It is important at this stage that we look forward rather than apportion blame. However, it is also appropriate that I take this opportunity to apologise to all those passengers, communities and businesses who have suffered years of disruption from repeated closures. That they should

now be facing a further delay is immensely frustrating. Now that Tube Lines is owned by TfL, all concerned are focused on completing the upgrade as quickly as possible and with the minimum of further disruption.

That is also our aim with Tube Lines' other upgrades. The other immediate priority is the Northern line upgrade, where work has started, but is already well behind schedule as a direct consequence of the late commissioning of the Jubilee line. I am convinced we can deliver the upgrade in a way that avoids the mistakes made on the Jubilee — that means less disruption, but also greater collaboration with the affected communities and businesses on how we handle those closures that are necessary.

The year also saw progress on the Periodic Review of Tube Lines' contract, a process that was inexorably leading towards a conclusion which would involve indefinite deferrals of crucial upgrade work in order to bridge the large funding gap that the PPP (through the private sector) promised to bestow on London. The broad detail of that process is set out later in this report but it has become a footnote rather than a headline. TfL's acquisition of Tube Lines has effectively changed the landscape. Freed from the complexity of the PPP, not to mention the expensive and distracting culture of claims that it spawned, all parties will be able to focus on delivering the upgrades with minimum disruption and in a way that gives best value for money. Londoners are no longer saddled with an arrangement where value for the customer was often overridden by the need to deliver returns to shareholders. The acquisition of the shares in Tube Lines is a good deal, and good news, for London.

Transparent and regular reporting of costs, performance and progress with the upgrades, of which this report is just one component, is a welcome feature of the new landscape. Commencement of the publication of four-weekly reports on progress, introduced from June 2009, is another. Both are part of the broader scrutiny that rightly covers all TfL's activities. This has been further strengthened this year with the establishment of the new Investment Programme Advisory Group — a panel of independent experts whose remit covers the breadth of TfL's investment projects. We will provide clear publicly available information so our performance can be judged.

Of course, value for money is the overarching point. We must upgrade the Tube — the dire consequences of not doing so are explored in Chapter Four — but we have an equal imperative to ensure we get maximum value from every pound we invest in the system. That means a new approach to upgrade work as set out above, but also a commitment to driving down costs and promoting efficiency in our daily maintenance and operational activities. I believe we are now well placed to achieve that, and my commitment is to ensure we do so.

Mike Brown
Managing Director
London Underground

Introduction

2. Introduction

Since the commencement of the PPP contracts, London Underground (LU) has produced an annual report reviewing the previous year's performance of the three contracts for the maintenance, enhancement and renewal of the infrastructure. This is the seventh report, and looks at the final full financial year of the First Review Period of seven and a half years.

2.1 Background

The responsibility for the maintenance and upgrading of LU's infrastructure was contracted to two private consortia in 2003, with the commencement of the three 30-year Public Private Partnership (PPP) contracts. The PPP contracts divided the network into three infrastructure companies (Infracos): Jubilee, Northern and Piccadilly lines (JNP contract); Bakerloo, Central, Victoria and Waterloo & City lines (BCV contract); and the Sub-Surface lines (SSL contract). Tube Lines were awarded the JNP contract, and Metronet the BCV and SSL contracts.

The intention of the PPP was to provide a long term commitment to the improvement of the Tube, using the expertise of the private sector, solving the financial constraints at the time, and reducing the backlog of investment needed on the network. The contracts were divided into four 7.5 year periods with the opportunity to review the requirements and costs through a process referred to as a Periodic Review. At the end of the 30 years the assets would be returned to LU stewardship.

The contracts are largely output specified, and set out required performance, but the responsibility for meeting these requirements is devolved to the Infraco. The Infracos are paid for their provision of the infrastructure on a four-weekly basis through the Infrastructure Service Charge (ISC), which is adjusted to include any additional performance bonuses or abatements (financial penalties).

2.2 The PPP to date

This year marks the last full year of the First Review Period — the first 7.5 years — of the PPP contracts, and sees the Infracos in a very different position from that envisaged at contract inception.

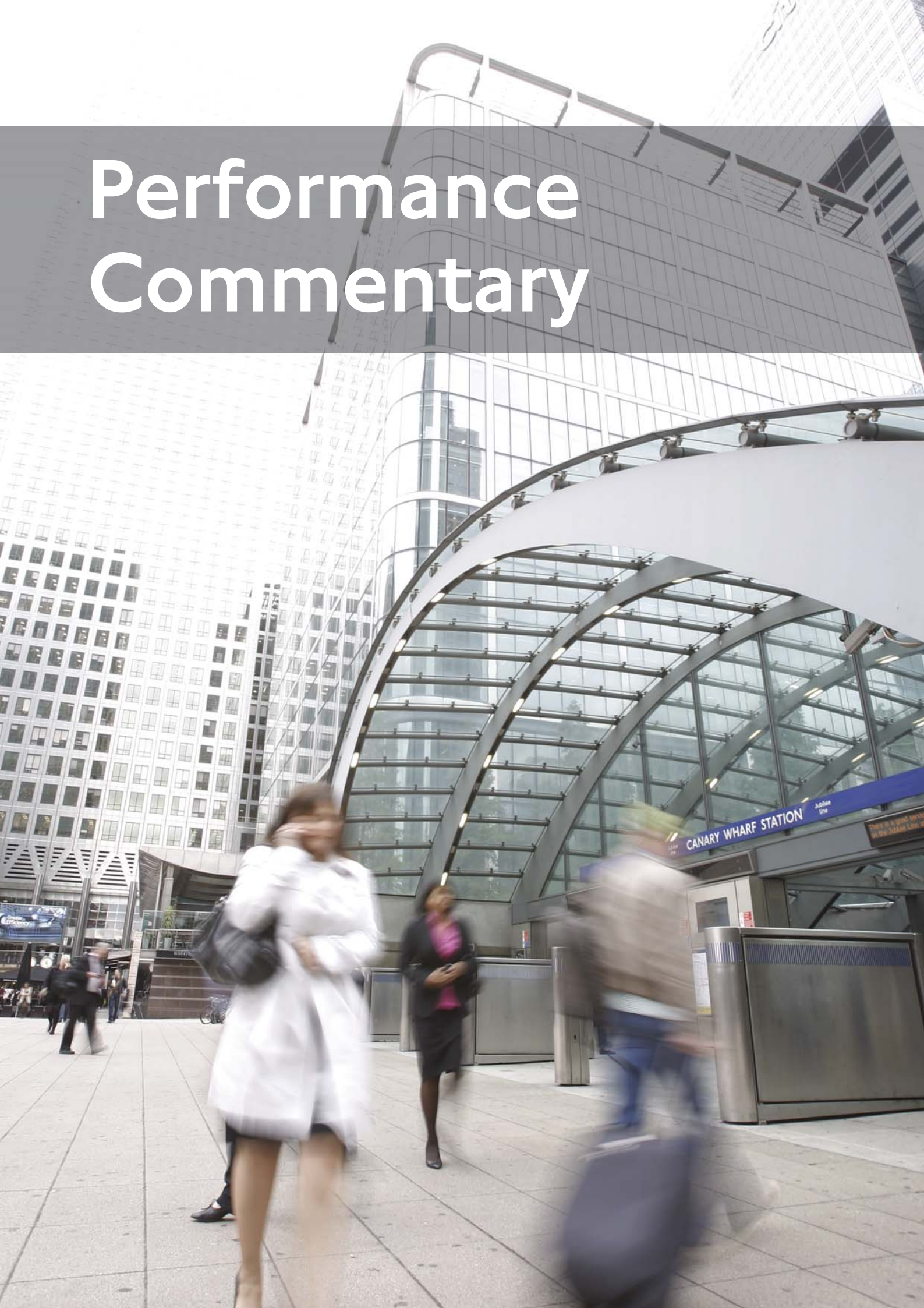
BCV and SSL

In July 2007 Metronet became insolvent, and its PPP contracts were put into Administration. The companies were transferred to TfL in May 2008, as TfL was the sole bidder for the companies, which led to integration with LU.

JNP

The collapse of Metronet did not alter Tube Lines' position, and its contract for the JNP lines remained unchanged. The Periodic Review process to determine the scope and costs for the second Review Period continued until TfL acquired the shares of Tube Lines on 27 June 2010. It is now a wholly-owned subsidiary of TfL. Maintenance and renewal work is ongoing, and the provision of infrastructure for the safe and reliable operation of the railway continues.

Performance Commentary



3. Performance Commentary

The PPP contracts for the maintenance and upgrading of the underground are monitored through the performance of the Infracos which is broken down into three key measures:

- **Availability:** day-to-day reliability of the assets and whether they are available for use;
- **Capability:** the potential that can be delivered by the assets — specifically capacity of the line and estimated journey time for customers; and
- **Ambience:** the quality of the customers' travelling environment.

Performance of the network is measured for each Infraco, and bonuses and abatements are made to or taken from the Infraco each financial period. Benchmarks were set for each measure before the commencement of the contracts: for Availability the benchmark is expressed in Lost Customer Hours (LCH) — the total additional journey time experienced by customers as a result of Service Disruptions; for Capability, the Journey Time Capability (JTC) of an average journey in minutes is used; and for Ambience a quarterly score out of 100 is used relating to several assets and attributes that contribute to the service experienced by customers. The benchmarks were set after a period of shadow running in order to establish an achievable minimum level of performance to be expected on each line.

During the bid stage for the original contracts, both Metronet and Tube Lines set high expectations for their performance in comparison with the benchmarks set. The Infracos' expected performance determined their expected level of payment in the form of bonuses. In the case of Metronet this was to prove unsustainable, resulting in administration and dissolution of the company. However, Tube Lines' bid remains a useful benchmark up until the final year of the Periodic Review process for the revised contract for the Second Review Period.

The PPP contracts also include obligations in respect of safety and the environment when the Infracos are delivering projects or undertaking any activity on the underground, such as maintenance. Commentary on these can be found later on in this chapter.

3.1 Tube Lines — JNP contract

Availability

The JNP network has shown improved Availability on the whole, with a nine per cent increase on the previous year's performance. This is largely due to the Jubilee line, as individually there has been no change in Availability on the Northern line and a 13 per cent drop from the previous year on the Piccadilly line. Overall, the JNP lines are performing 42 per cent better than benchmark and 56 per cent better than in 2003/04.

Percentage variance of LCH against Benchmark

	Jubilee	Northern	Piccadilly
03/04 — PPP start	-33%	-79%	8%
08/09	-9%	35%	59%
09/10	23%	35%	55%

Availability figures are subject to change as LCH in abeyance are agreed.

From a peak of 23 per cent better than benchmark in 2006/07, the Jubilee line had followed a downward trend, but this has been reversed in the past year to return to 23 per cent better than benchmark. Rolling stock Mean Distance Between Failures (MDBF) has shown an improvement from two per cent better than at Transfer in 2008/09 to 14 per cent better this year, but there was an increase in the amount of signalling related failures. Overall performance will be addressed through the Jubilee and Northern line Upgrade (JNUP) works, whilst points-related failures will continue to be addressed through ongoing maintenance initiatives.

After a year on year increase since 2004/05, Northern line Availability has remained static overall in comparison with the previous year at 35 per cent better than benchmark in 2009/10. Performance monitoring and improvement activities have continued, and initiatives have been identified to address some specific signalling related failures. Rolling stock performance has reversed the downward trend that has prevailed since transfer, to show an improvement from 13 per cent worse than at Transfer in 2008/09 to 19 per cent better in 2009/10.

Availability remains high on the Piccadilly line, with delivery 55 per cent better than benchmark, although the line is performing slightly worse than in 2008/09. There has been an increase in incidents, although overall failures relating to signalling remained relatively low in comparison with the Jubilee and Northern lines, and the rolling stock remains the best performing fleet. The last three periods of 2009/10 have demonstrated the consistency of the Piccadilly line fleet with an MDBF at over 30,000kms.

Capability

The capability targets for all three lines are delivered through the line upgrade programmes with the first due to have been delivered in 2009 (Jubilee line). However, the Jubilee Line Upgrade (JLU) has not yet been completed and there is still no confirmed delivery date, so the Jubilee line has only seen a one per cent improvement against the benchmark this year.

The scheduled delivery dates for completion of the main upgrades are 2012 (Northern) and 2014 (Piccadilly). However, following delays to the JLU, the Northern line is also facing significant delay to the scheduled programme for its upgrade. Following the completion of the sale of Tube Lines to TfL, LU is reviewing both the Piccadilly and Northern line upgrades to determine the most efficient programme for delivery, which could affect the completion dates. It is possible, therefore, that capability improvements will differ from those expected in the following years.

Ambience

On the JNP network, Ambience has marginally improved in 2009/10, with a 2.3 per cent improvement against the benchmark. Cleaning attributes in particular have shown an improvement from last year and monitoring of the cleaning activities continues.

3.2 LU — BCV contract

Availability

The lines on the BCV network have shown steady progress overall this year, averaging 31 per cent better than benchmark. There has been a five per cent overall improvement on 2008/09 figures, which continues the positive trend since LU took over the stewardship of the contract. All the fleets on the BCV network have performed well this year — although Waterloo & City remains worse than benchmark — with a steady average that is eight per cent better than last year's result. This is in part the result of the performance improvement plan continuing to be implemented on all lines, with specific focus on rolling stock, signalling and track.

Percentage variance of LCH against Benchmark

	Bakerloo	Central	Victoria	W&C
03/04 — PPP start	15%	-16%	-16%	-58%
06/07 — Pre MR Admin	10%	13%	-27%	-29%
08/09	34%	33%	23%	-219%
09/10	40%	31%	31%	-113%

Availability figures are subject to change as LCH in abeyance are agreed.

The Bakerloo line has shown improvement year on year since 2006/07, and Availability has this year hit a high of 40 per cent better than benchmark, despite its aging asset base. Since the commencement of the contract, Bakerloo line Availability has been consistently better than benchmark.

Central line Availability has remained steady with only a slight decrease of two per cent from last year. No upgrade is planned on this line until the Third Review Period of the contract (2018–2025); however, the traction containment programme to skim DC motors has been successful in sustaining fleet availability.

The upgrade on the Victoria line is well under way, and Availability remains strong with an 11 per cent reduction in LCH against 2008/09. This continues the positive trend that bucked the decline in the years before Metronet's administration. Overall Availability was better than benchmark by 31 per cent, continuing the good performance achieved in 2008/09. Rolling stock reliability has declined by 12 per cent from last year as there have been a number of failures relating to age and utilisation. Fleet performance will continue to be sustained within economic constraints until the fleet is totally replaced with new rolling stock by October 2011.

The Waterloo & City line remains the poorest performer against benchmark of the BCV lines, although changes in performance in percentage terms are disproportionate in comparison with other lines as the operation is so small, with only two stations and five trains. The variance to benchmark has improved from 219 per cent worse in 2008/09 to 113 per cent worse than benchmark in 2009/10, and the introduction of 'pit stop' methodologies has reduced down-time in the event of a failure. Rolling stock availability has improved 17 per cent on last year, which reverses the decline shown in the previous two years.

The decision to run a timetable with five trains has had a significant effect on both Capability and Availability: Capability benefits greatly from running an extra train, whereas Availability is immediately impacted in the event of a defect as there are no spare trains. This decision was made after detailed modelling showed that more benefit could be derived for the customer through improving Capability.

Capability

Neither the Bakerloo nor the Central line will see any step change in Capability as there is no upgrade for the Central line planned and the Bakerloo line upgrade is not due for completion until 2020. However, both remain better than benchmark. The upgrade on the Victoria line is continuing, and this is reflected in the five per cent better than benchmark result in 2009/10. The Waterloo & City line remains 14 per cent better than benchmark as the whole fleet of five trains is continuing to be utilised for service in the peaks.

Ambience

Ambience has improved this year, with an improvement of 1.7 per cent from 2008/09. It is now also 1.7 per cent better than benchmark. Train related attributes have improved, and measures have been put in place to reduce scratch graffiti and improve overall ambience on the trains.

3.3 LU — SSL contract

Availability

The SSL network has shown an overall Availability of 46 per cent better than benchmark, up from 36 per cent in 2008/09. This is the best result since the commencement of the PPP, and continues the encouraging trend of LCH reduction since Administration, with a 16 per cent improvement on the previous year in 2009/10. Incidents on rolling stock have increased slightly, and the overall performance levels are three per cent better than 2008/09.

Percentage variance of LCH against Benchmark

	District	MCH
03/04 — PPP start	44%	21%
06/07 — Pre MR Admin	-19%	37%
08/09	15%	48%
09/10	40%	50%

Availability figures are subject to change as LCH in abeyance are agreed.

The District line showed a 30 per cent improvement since 2008/09, and 40 per cent better than benchmark result in 2009/10. The Reliability Growth Plan is continuing on the fleet, which is shown in the rolling stock performance reaching a high of 44 per cent better than in 2003 this year. Door systems have continued to be the dominant failure mode, and to address this, a specialist team has been introduce to identify, rectify and reduce the number of faults.

The MCH group has performed 50 per cent better than benchmark with a three per cent improvement since last year, which continues the good performance since the commencement of the contract. The Metropolitan fleet has achieved historic best levels of performance — showing a 58 per cent improvement since 2003 — despite being 50 years old. Work will continue in the short term to sustain the performance of the fleet until it is replaced by new rolling stock.

The Circle and Hammersmith & City fleet has shown a decline of eight per cent in 2009/10, which is 47 per cent better than at the commencement of the contract. The overhaul and modification of the traction package this year initially worsened Availability. The extended Circle line service that was put in place in December 2009 introduced better utilisation of the rolling stock, as the number of trains required for the service during weekday peak hours increased from 41 to 42.

Capability

Capability remains steady on both the District line and MCH group with performance continuing at two per cent and one per cent respectively better than benchmark seen in 2009/10 as has been the case since 2006/07. The SSL upgrade work is not due to be completed for several more years, and it is only at this point that a step change in Capability is expected.

Ambience

The results for Ambience on the SSL lines are good, with a 2.7 per cent improvement on 2008/09. The recent refurbishment of the District line fleet and the installation of film on glass surfaces to reduce scratch graffiti have contributed to an ambience result that is 3.9 per cent better than the commencement of the contract — the best result seen so far.

3.4 Environmental and Safety performance

Environmental performance

The PPP contracts include a series of contractual obligations around managing the environmental impact of projects and maintenance activities. Both BCV/SSL and Tube Lines also have annual Environmental Improvement Plans (EIPs) which complement the contractual obligations.

This year, both BCV/SSL and Tube Lines have achieved all their actions in the EIPs, as well as showing an improved performance in a number of areas — and in waste management in particular. No regulatory notices were received, and recycling of Station and Depot waste increased from 40 per cent to 46 per cent over the year. There were no major environmental incidents reported by the Infracos, and Tube Lines maintained its certification to the independently accredited Environmental Management System ISO 14001.

LU's Climate Change Strategy continues to be delivered through LU's Plan. A key highlight of the year was LU becoming one of the first public transport operators to achieve the Carbon Trust Standard, due to achieving an eight per cent improvement in carbon efficiency — equating to a reduction from 81g to 75g of Carbon Dioxide (CO2) per passenger kilometre emitted. Other highlights included the instigation of a project to switch off escalators during off peak periods — predicted to deliver savings of 4000 tonnes of CO2 per year — and the completion of a feasibility study for the Low Carbon Station Initiative, which identified twenty low carbon measures such installing as Light Emitting Diode (LED) lighting for customer areas and innovative heating and cooling systems to be trialled at two stations in 2011.

Safety performance

Safety is of absolute importance to LU and its safety management regime is independently assessed and monitored by the Office of the Rail Regulator (ORR) and Her Majesty's Railway Inspectorate (HMRI). Under the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS), LU has to apply to HMRI for the Safety Certification to operate the trains, and the Safety Authorisation to operate the stations and infrastructure. LU's application for Safety Certification and Authorisation was assessed by HMRI and approved in March 2007.

Each LU Nominee Company (BCV and SSL) and Tube Lines are obliged under their PPP Contracts to produce and comply with their own Safety Cases, which must be approved by LU. LU then monitors their safety performance, audits compliance with their Safety Cases and Category 1 Standards and agrees an annual Safety Improvement Programme. Five key asset areas are monitored on the LU network: Broken Rails, Technical SPADs (Caused by Asset Failure), Confirmed Fires, Parts Detached from Trains and Door Faults.

This year, Tube Lines has reversed the worsening results of 2008/09 in four of the five key areas; LU BCV has seen a mixed result as three of the key areas have increased from 2008/09 while two have reduced; and LU SSL has shown a very positive improvement in four of the five key areas.

3.5 Operating performance

LU's operating performance results show the volume, reliability and safety of the service that LU is providing for its customers, and their satisfaction with this service. In particular, journey time performance and customer information contribute towards customer satisfaction, which is shown through the Customer Satisfaction score (CSS). The individual asset areas reported above in the contract performance section also contribute to the overall operating performance statistics.

The effects of the economic climate are reflected in the number of passenger journeys which, at 1,065 million in 2009/10, showed a reduction of 2.3 per cent from the previous year, although the final quarter of the year saw a return to year on year growth. This was also the fourth year in succession that LU has carried in excess of one billion passenger journeys — as many as the entire National Rail network.

Performance Measure	2009/10 Target	2009/10	2008/09
Passenger journeys (million)	1,094	1,065	1,089
Customer satisfaction (score 0–100)	79	79	79
Excess journey time (minutes, weighted)	6.78	6.41	6.64
Service volumes — (Million kms operated)	69.6	69.4	70.6
Schedule operated (%)	96.3	96.6	96.4
Customer major injuries per million journeys	0.13	0.10	0.12

The year's percentage of schedule operated at 96.6 per cent exceeded the target by 0.3 per cent and was the highest achieved for 15 years, despite losses due to industrial action early in the year. LU also coped well with the severe winter weather in December 2009 and January 2010 that caused extensive disruption to many National Rail services in the London area, losing only some one per cent of scheduled kilometres over this period as a consequence of the weather.

Service volume was 1.2 million kilometres down on 2008/09, a reduction of 1.7 per cent and narrowly missing the target for the year. This was due to an increase in weekend engineering works — notably on the JLU — which reduced the network schedule by 4.5 million kilometres this year compared with 3.1 million in the previous year. On the Jubilee line alone, the increased number of weekend closures used by Tube Lines for line upgrade works reduced the schedule by almost 1.4 million kilometres (17.5 per cent) of the line's timetabled service.

Improved train service reliability and lower passenger numbers both contributed to a year on year reduction in excess journey time across the whole network. Ticket purchase times remained low as the usage of Oyster continued to increase.

The overall Customer Satisfaction Score for the year averaged 79, thereby meeting the target and matching last year's record performance.

Delivering the Investment Programme

4. Delivering the Investment Programme

Despite a slight dip in passenger numbers in 2009/10 due to the impact of the economic downturn, LU carried more than one billion passengers for the fourth year in succession. Crucially, in the long term demand is forecast to continue to grow — by around 25 per cent over the next ten years or so. The ongoing line upgrades to deliver additional capacity therefore remain vital. Without them, the current ageing assets would start to fail more regularly as, denied additional capacity, the system starts to become more and more overcrowded and its infrastructure is put under increasing strain.

In short, if the Tube is not upgraded, overcrowding would increase by 40 per cent and capacity would decrease by 30 per cent. Clearly such a situation is unsustainable if London's economic recovery and growth are to be supported and the Tube investment programme is therefore key to both. The line upgrades — involving new signalling, new track, new control centres and in many cases new trains — will deliver faster, more frequent and more reliable train services and a 30 per cent increase in peak capacity.

Almost as crucial as the upgrades themselves is the way they are delivered. The past year has brought this into even sharper focus. The first of the major line upgrades promised by the PPP — on the Jubilee line — should have been completed by December 2009. Unfortunately, Tube Lines failed to deliver by that date, and at time of publication a confirmed and achievable programme for completion is still to be finalised, although following the acquisition of Tube Lines by TfL, the upgrade is under urgent review in order to ensure delivery as soon as practicable. Compounding this failure to deliver on time is the fact that the works to deliver the upgrade have themselves placed users of the line under considerable strain, with a protracted sequence of disruptive weekend closures stretching over three years.

LU does not believe such an approach is sustainable for future upgrades. For that reason it urged Tube Lines to rethink its initial strategy for delivering the Northern line upgrade, which would have involved a heavy programme of weekend and early evening closures, and moved to withdraw the latter as one of its first actions following completion of the acquisition. In reviewing both the Northern and Piccadilly line upgrades, the aim will be to determine a programme that is efficient, taking advantage of synergies with LU's other line upgrades, and minimises the disruption for customers and businesses.

This reflects the approach being taken by LU to the upgrade of the signalling on the Sub-Surface lines. LU issued the invitation to tender for this work in July 2009, and in doing so specifically sought to encourage bids from suppliers that are designed to minimise the level of access, and therefore closures, required. The market has responded positively and bids received are now being evaluated. We also seek the best value for money we can get from this contract — and estimate that this will amount to very significant savings compared with the contract that existed prior to Metronet's collapse and which was terminated prior to transfer to TfL.

Meanwhile, the first of the new air-conditioned 'S-stock' trains for the sub surface lines was delivered to London for testing in October 2009, and will enter passenger service on the Metropolitan line in the summer of 2010.

The Victoria line upgrade is also now being directly managed by LU and progressed well during the year. The first of the line's new trains entered passenger service in July 2009. Others have since followed and are now running in passenger service in the morning and evening peak, with the roll out of the full fleet of 47 trains continuing through 2010 and 2011.

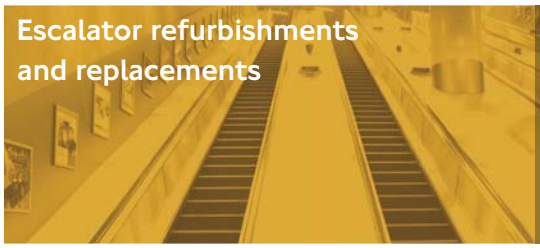
Other improvements delivered this year included the new Northern Ticket Hall at King's Cross St. Pancras, opened in November 2009, which has effectively doubled the size of the station, cutting congestion and significantly improving the experience for the hundreds of thousands of passengers who use the station daily.

Despite its failure to deliver the biggest projects, the PPP has nevertheless delivered the renewal and upgrade of many other assets — including track, stations, lifts and escalators. The table below shows progress in these areas to the end of the last financial year (March 2010).

The impact of the recession and the legacy of Metronet on funding meant some hard investment choices had to be made during the year, and TfL's Business Plan published in October 2009 confirmed a number of projects, including some step-free access schemes, would have to be stopped in order to protect funding for the core upgrade projects. TfL nevertheless remains committed to improving the accessibility of the Tube network and further improvements have been made this year. 59 stations were step free by the end of the year, and four more are due to be completed by the end of 2010. Future step-free access improvements are now focused on central London interchange stations, which will deliver significant new journey opportunities. King's Cross St. Pancras will become fully step-free when lifts to the Northern line platforms are brought into use in the summer of 2010; work is in progress at Green Park, Blackfriars and Farringdon to deliver step-free access by the end of 2011; and major station redevelopment schemes underway or soon to begin at Tottenham Court Road, Victoria, Paddington (Hammersmith & City) and Bond Street will also deliver step-free access as well as much needed enhancements to the capacity of these key stations.

Station modernisation and refurbishment work also incorporates induction loops, clearer signage and improved audio/visual information facilities. LU has also installed 140 wide aisle ticket gates, which are much wider than standard gates, and more are planned.

Renewing assets under the PPP — progress check

		2009/10	Cumulative total since 2003
 Kilometres of track replaced	BCV	4	58.5
	JNP	1.2	56.4
	SSL	21.3	82.4
	Total	**26.6**	**197.2**
 Escalator refurbishments and replacements	BCV	13	55
	JNP	11	83
	SSL	1	23
	Total	**25**	**161**
 Lift refurbishments and replacements	BCV	0	10*
	JNP	2	6
	SSL	0	6
	Total	**2**	**22**
 Stations refurbished or modernised	BCV	2	31
	JNP	20	85
	SSL	1	30
	Total	**23**	**146**

**includes two Mobility Impaired Person (MIP) lifts*

Tube Lines

5. Tube Lines

Periodic Review

Following the Periodic Review of the JNP contract, LU submitted its Restated Terms to Tube Lines in December 2008. Tube Lines responded on 30 June 2009, which then led to a period of engagement during which LU and Tube Lines agreed the scope of work in certain areas. However, the two parties still had different views of the costs — TLL priced the contract at £5.75bn , whilst LU's assessment for RP2 was £4bn. Accordingly, in September 2009 LU asked the PPP Arbiter (OPPPA) to provide direction on the cost of Restated Terms.

Both LU and Tube Lines made representations to the Arbiter explaining their assessments, and in March 2010 the Arbiter gave his Final Cost Directions. This stated that the contract should cost £4.46bn in RP2, which was substantially less than Tube Lines' claim, but remained slightly higher than LU's assessment.

Share Purchase Agreement

Once the costs were adjusted to reflect TfL's latest planning assumptions, the estimated funding shortfall between the Arbiter's Final Cost Directions and TfL's Business Plan amounted to over £600m. LU's position was that Tube Lines should raise finance to meet the gap. However, the Arbiter maintained his position that LU would need to fully fund the scope of work, and asked for revised Restated Terms by 21 May 2010. LU responded with a revised scope of work for RP2 that could be afforded within TfL's Business Plan, which included the postponement of the Piccadilly Line Upgrade by nearly 10 years. This partly addressed, but did not close, the funding shortfall. In parallel, discussions were held between TfL and the shareholders of Tube Lines, recognising the huge costs and inherent difficulties of the PPP contract.

On 7 May 2010, TfL reached an agreement with Bechtel and Amey (Ferrovial) to acquire their shares in Tube Lines. The acquisition of Tube Lines by TfL was duly completed on 27 June 2010, paving the way forward for more cost effective work to be undertaken over the next Review Period whilst retaining as much scope as possible

The acquisition will not have an impact on the day to day operation or safety of the railway. Tube Lines is now a wholly-owned subsidiary of TfL, with the Chief Executive reporting directly to LU's Managing Director. Amey will continue to provide experienced personnel to assist Tube

Lines in the management of maintenance on an ongoing basis, and Tube Lines' employees will continue their roles in delivering the maintenance and upgrade work, but will be able to forge stronger relationships with LU colleagues without the constraints of the PPP. In particular, the 'claims culture' that had developed, which diverted considerable amounts of resource and focus away from the job in hand, can be set aside.

A transition plan has been put in place to map out the staged withdrawal of Bechtel from the upgrade programmes. LU will now review the upgrade programmes to find better solutions for the schedule of work planned, including considering possible synergies with the BCV and SSL networks. This should result in a position where greater value for money and an efficient network wide upgrade programme can be achieved, whilst ensuring minimum disruption to customers.

Edgware Road signal cabin, dating from 1926 and still used today to control the signals on one of the busiest junctions on the Tube network. The upgrade of the signalling on the Circle, Hammersmith & City, District and Metropolitan lines will eventually enable the cabin to be decommissioned and replaced with a centralised and modern system.

6. Data Summary

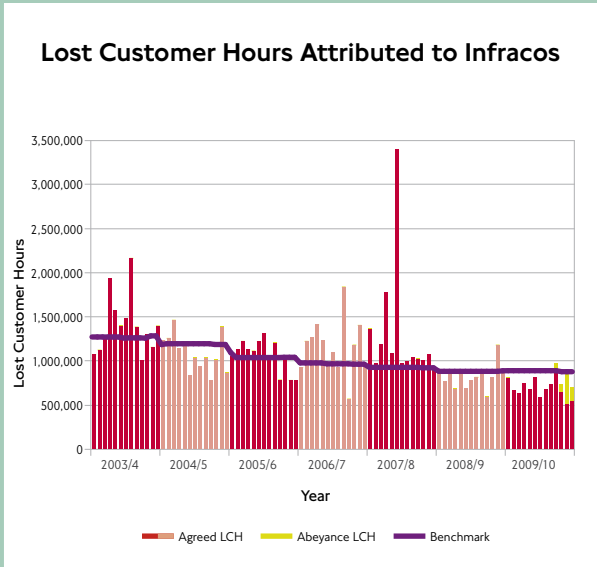
This chapter presents a summary of the key performance information on the three London Underground Public Private Partnership (PPP) contracts for the fi nancial year 2009/10.

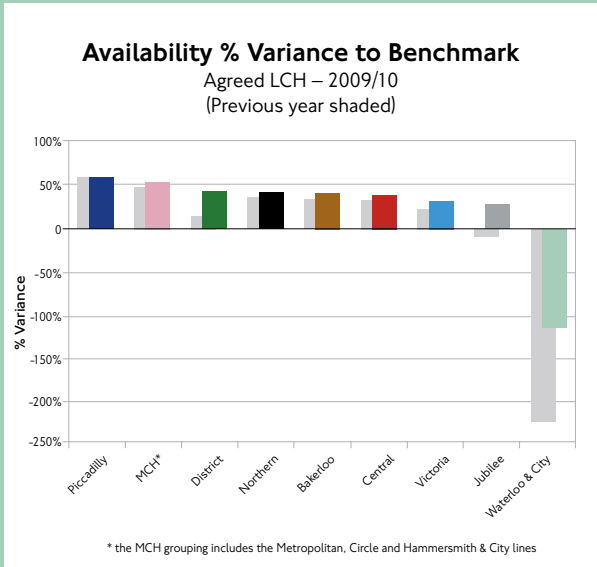
A description of each key performance measure is summarised below, followed by a summary of performance data for the financial year 2009/10. The information surrounding the data presented here can be found in the Performance Commentary chapter.

Availability

Availability is a day-to-day performance measure focusing on the reliability of the assets and whether they are available for customer service. The measure counts delays and disruptions lasting more than two minutes and takes into account the duration, location and time of day of the disruption to estimate the total cost in terms of customer time; expressed as a unit called 'Lost Customer Hours' (LCH). This is to ensure that each part of the network receives the appropriate attention in relation to the effect on customers if an asset fails or a disruption occurs. For example, a two-minute delay at Victoria in the morning peak costs significantly more LCH than a two-minute delay on a Sunday evening in the suburbs.

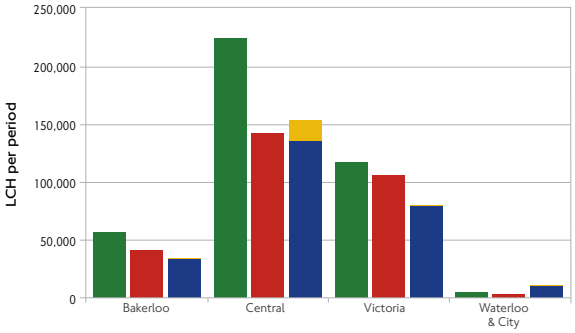
The contract benchmarks — set before the contract commenced in 2003 — were set at approximately five per cent worse than historic London Underground performance for the first year of the contract, becoming more challenging in subsequent years. The Infraco is then rewarded or abated each period in relation to the benchmark.





LU BCV – Availability

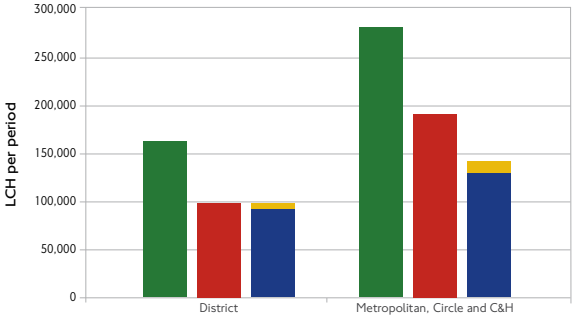
Average lost customer hours (LCH) per period 2009/10



Contract Benchmark	56,600	223,800	117,000	4,800
Bid Projection	40,889	141,663	105,978	3,382
Achieved (Agreed)	33,543	135,593	79,833	10,193
Achieved (Abeyance)	572	17,912	524	41

LU SSL – Availability

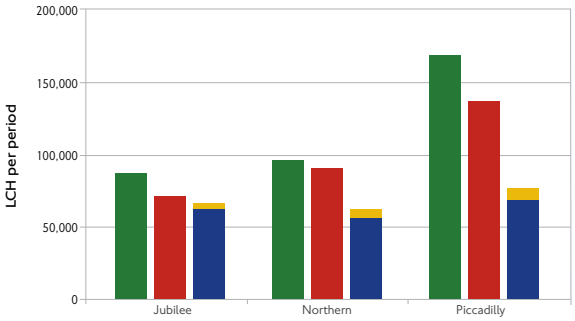
Average lost customer hours (LCH) per period 2009/10



Contract Benchmark	162,600	281,300
Bid Projection	98,309	191,275
Achieved (Agreed)	92,423	129,208
Achieved (Abeyance)	5,605	12,397

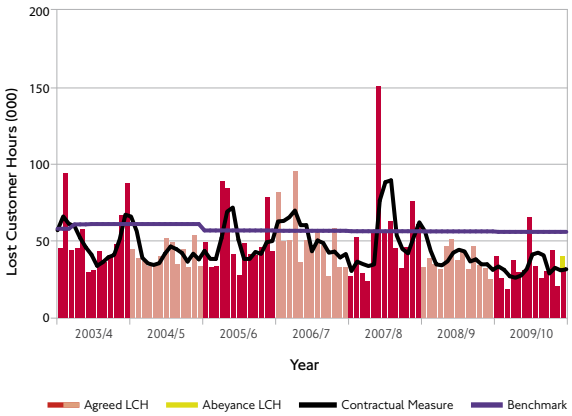
Tube Lines (JNP) – Availability

Average lost customer hours (LCH) per period 2009/10

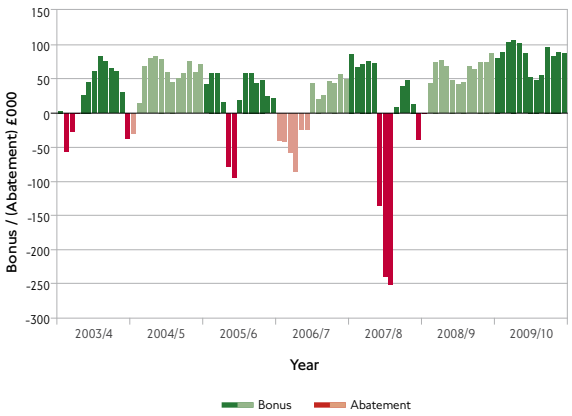


Contract Benchmark	87,078	95,900	168,692
Bid Projection	70,593	90,087	136,956
Achieved (Agreed)	62,642	55,838	68,364
Achieved (Abeyance)	4,050	6,060	7,864

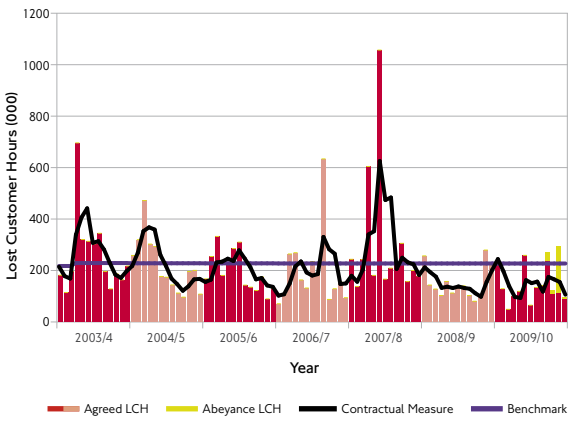
Bakerloo line
Lost Customer Hours (000)



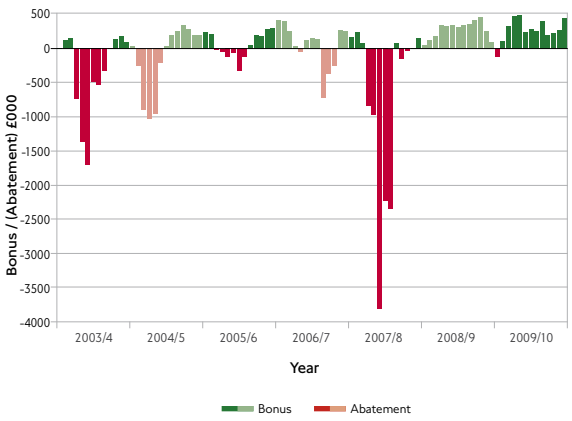
Bakerloo line
Bonus / (Abatement) £000



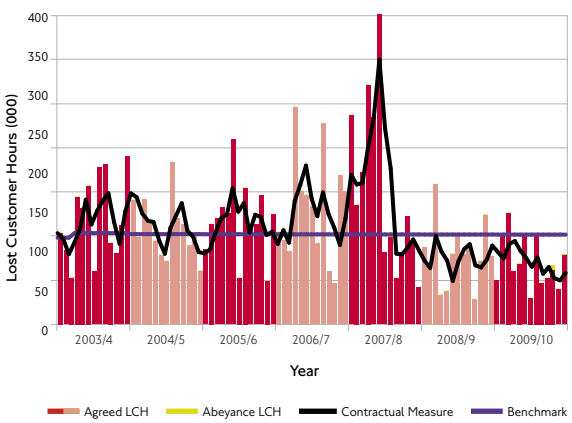
Central line
Lost Customer Hours (000)



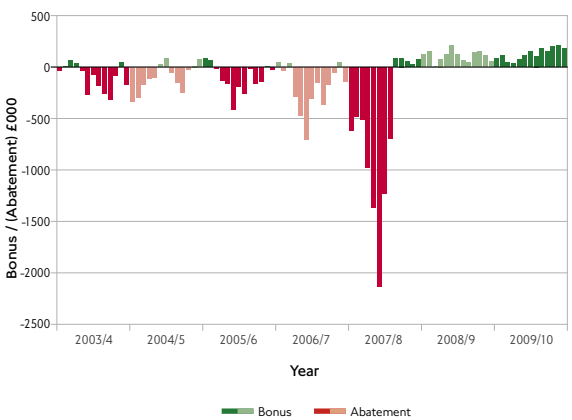
Central line
Bonus / (Abatement) £000



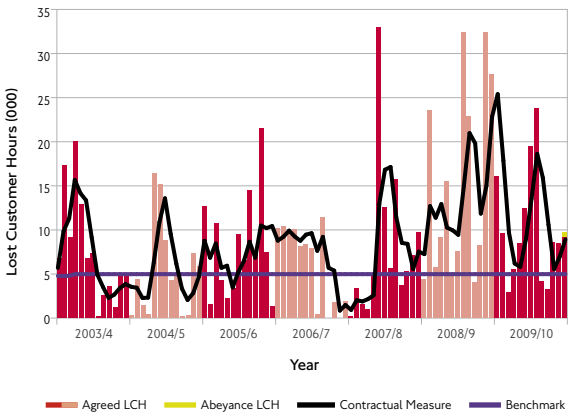
Victoria line
Lost Customer Hours (000)



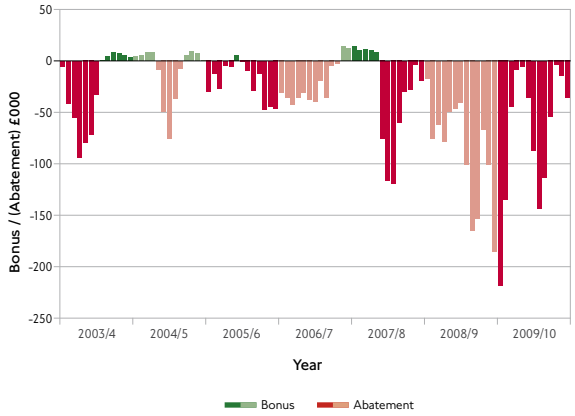
Victoria line
Bonus / (Abatement) £000



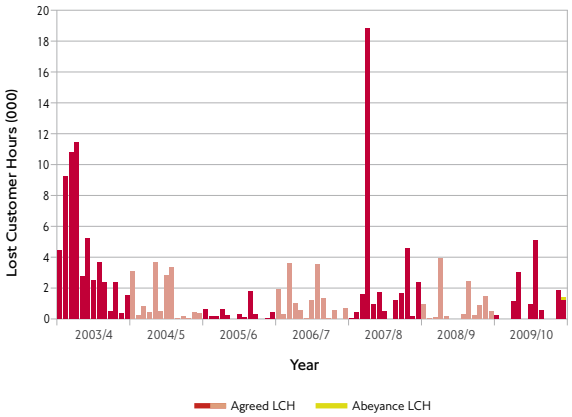
Waterloo & City line
Lost Customer Hours (000)



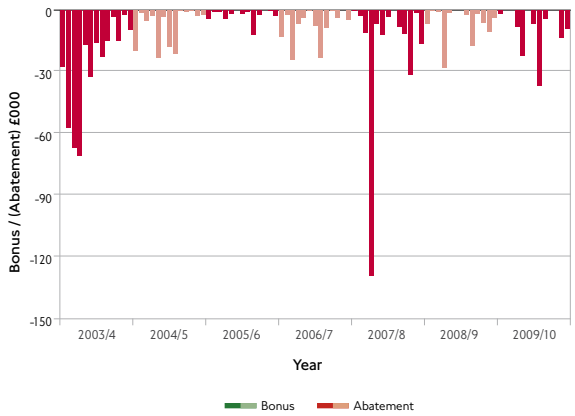
Waterloo & City line
Bonus / (Abatement) £000



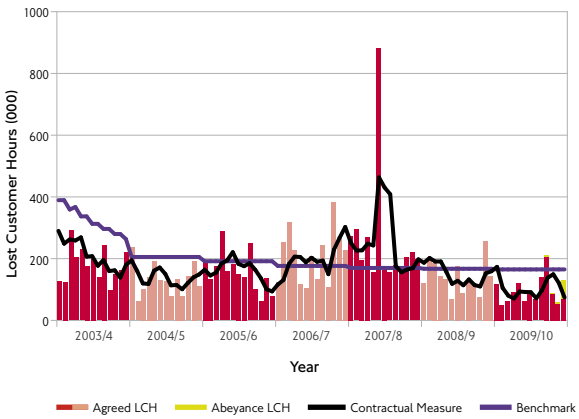
LU BCV other lines
Lost Customer Hours (000)



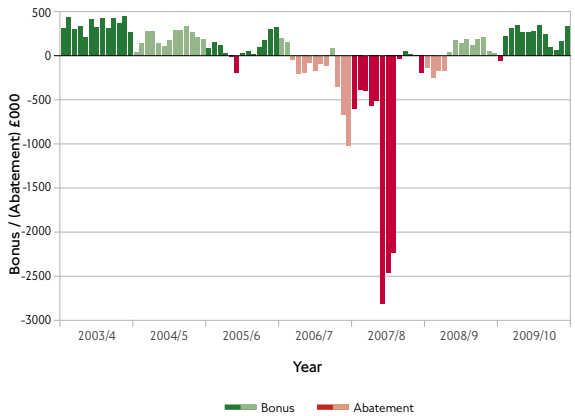
LU BCV other lines
Bonus / (Abatement) £000



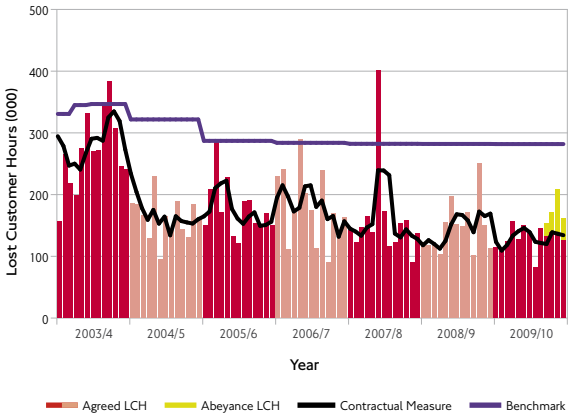
District line
Lost Customer Hours (000)



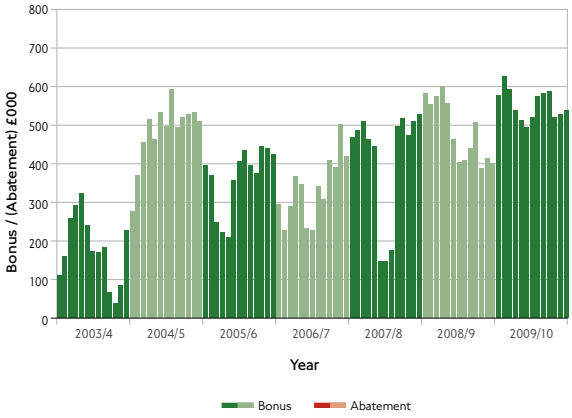
District line
Bonus / (Abatement) £000



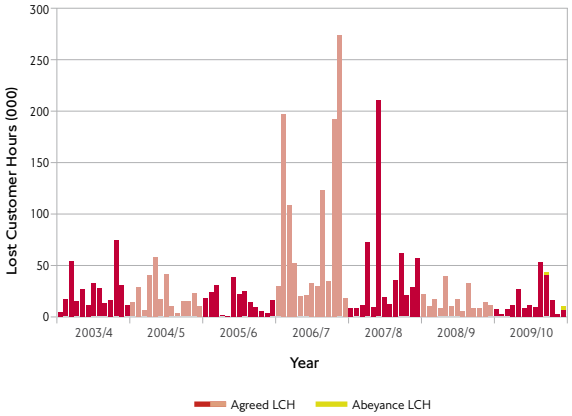
Metropolitan, Circle and Hammersmith line
Lost Customer Hours (000)



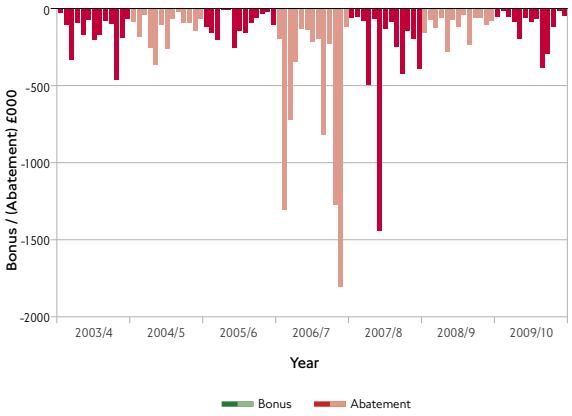
Metropolitan, Circle and Hammersmith line
Bonus / (Abatement) £000



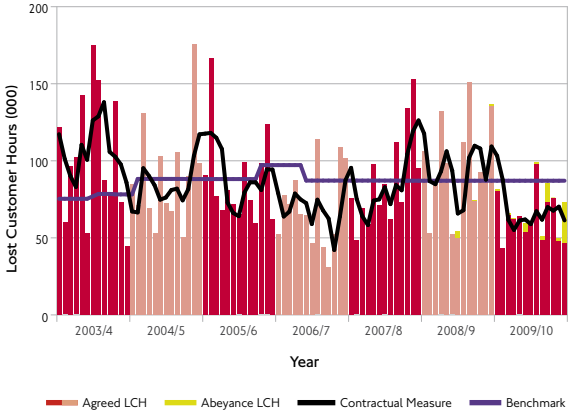
LU SSL other lines
Lost Customer Hours (000)



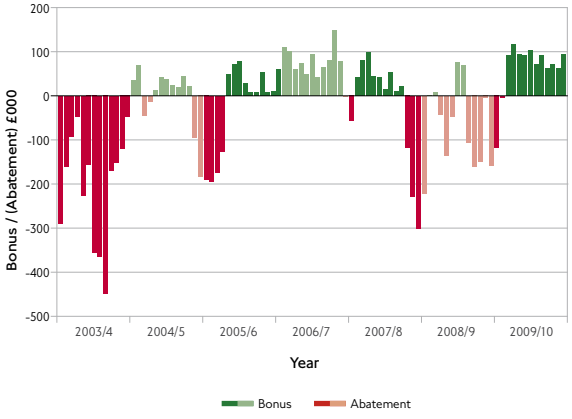
LU SSL other lines
Bonus / (Abatement) £000



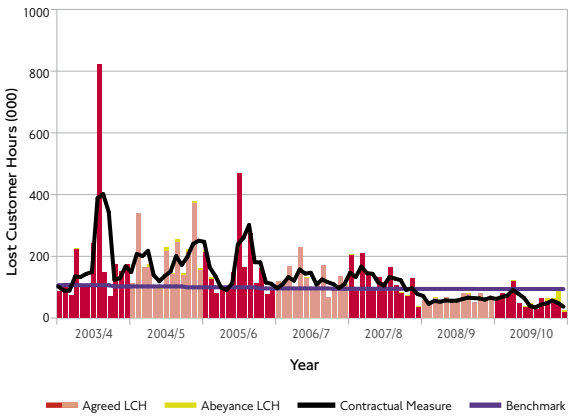
Jubilee line
Lost Customer Hours (000)



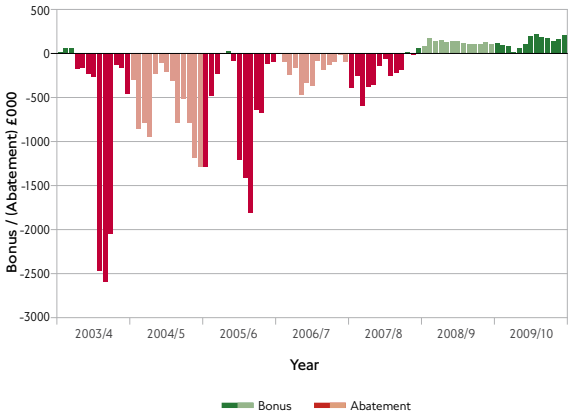
Jubilee line
Bonus / (Abatement) £000



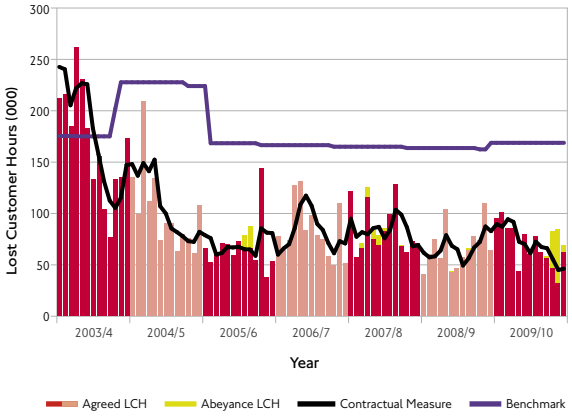
Northern line
Lost Customer Hours (000)



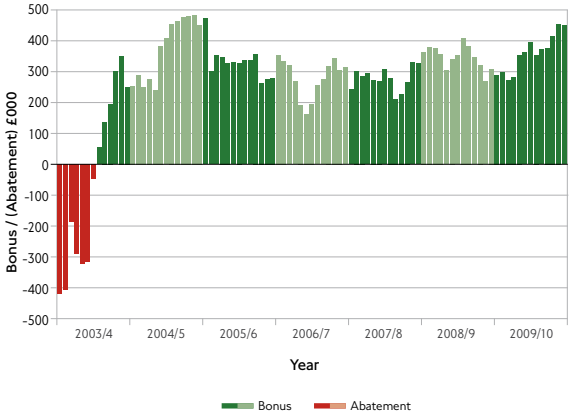
Northern line
Bonus / (Abatement) £000



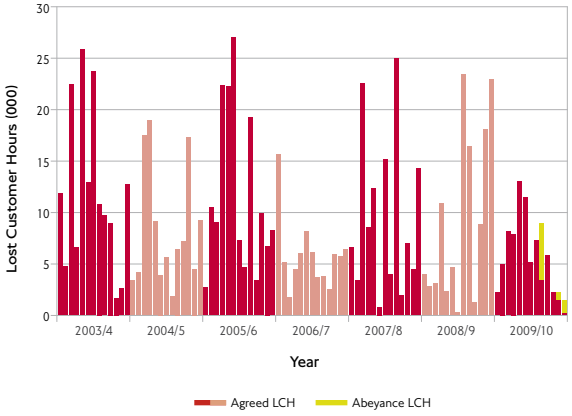
Piccadilly line
Lost Customer Hours (000)



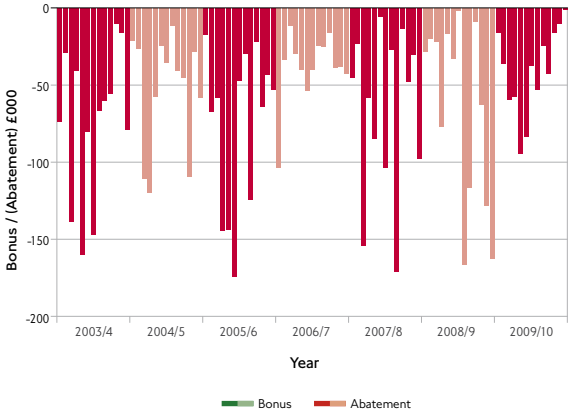
Piccadilly line
Bonus / (Abatement) £000



Tube Lines JNP other lines
Lost Customer Hours (000)



Tube Lines JNP other lines
Bonus / (Abatement) £000

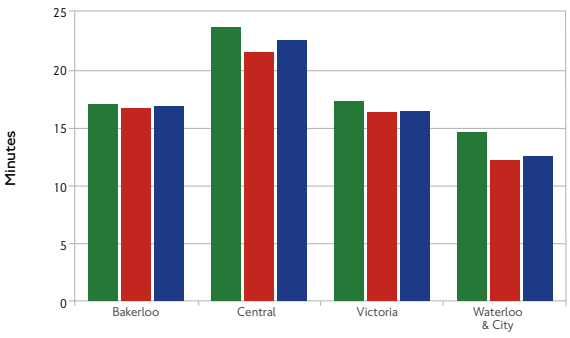


Capability

Capability is a longer-term measure which looks at the potential capacity of the assets to reduce the journey time experienced by the customer. Improved capability can be achieved in several ways — the Infraco can choose to have more or faster trains (through train or signalling systems), trains with more capacity, or a combination of these options to achieve requirements set out for capability on all lines.

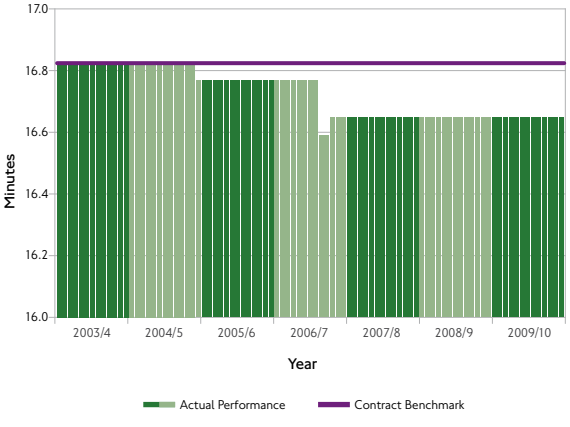
Significant improvements are set out in the contract, and most of these are due in the Second Review Period to reflect the long lead times involved in procuring new trains and signalling. However, there are targets for some lines in the First Review Period, and the Infracos themselves may choose to make capability improvements at any time, by increasing the fleet size available for service (through more efficient maintenance and management of spare trains), for example, or by addressing the causes of certain speed restrictions that act as constraints on line capacity.

LU BCV – Aggregate Capability 2009/10

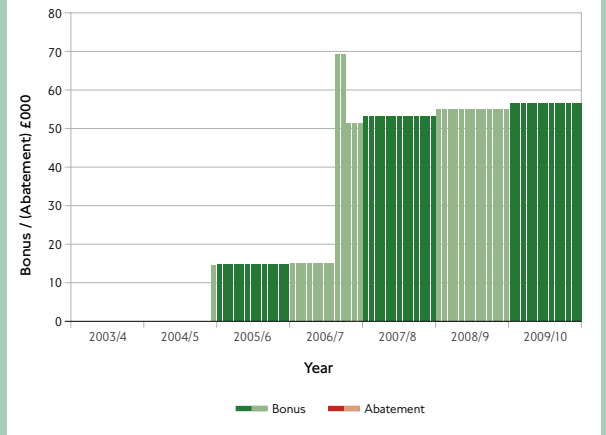


Contract Benchmark	16.82	23.45	17.1	14.49
Bid Projection	16.5	21.32	16.16	12.01
Achieved	16.65	22.36	16.24	12.4

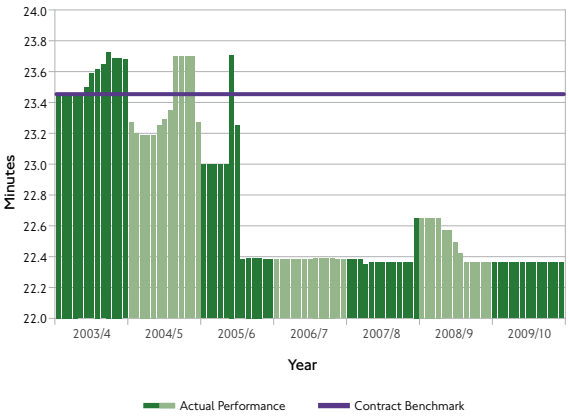
Bakerloo line Capability
Minutes



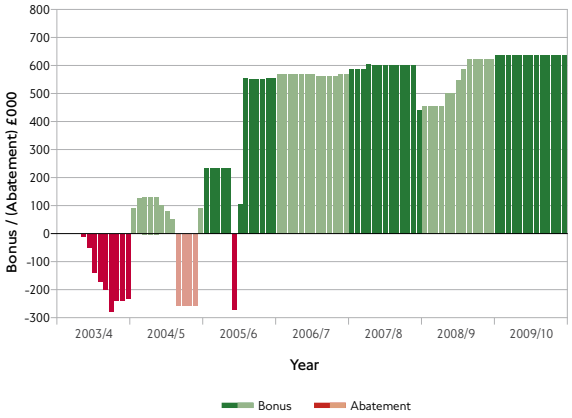
Bakerloo line Capability
Bonus / (Abatement) £000



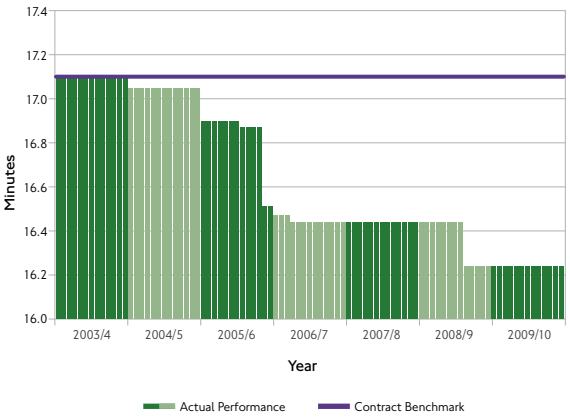
Central line Capability
Minutes



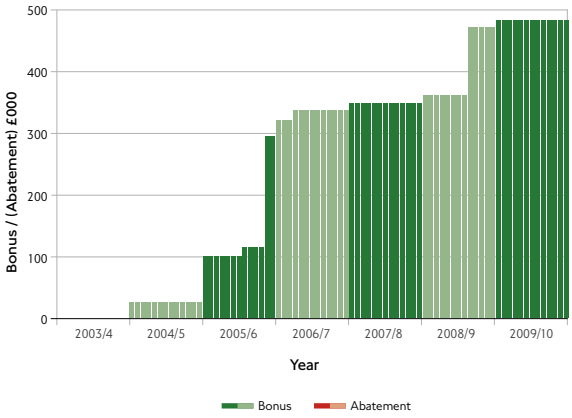
Central line Capability
Bonus / (Abatement) £000



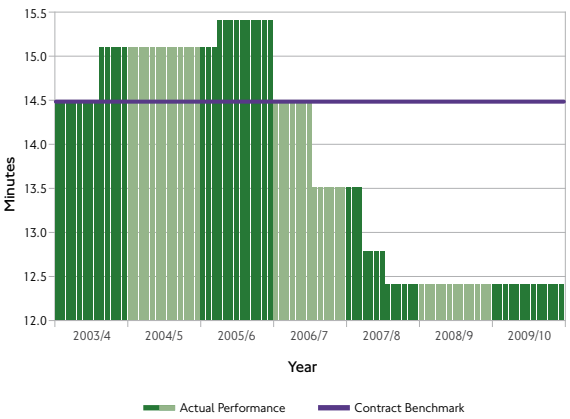
Victoria line Capability
Minutes



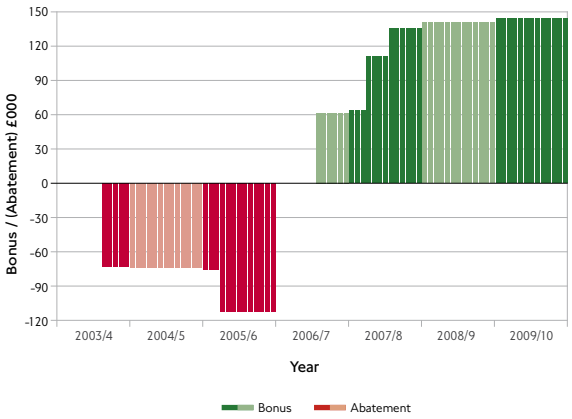
Victoria line Capability
Bonus / (Abatement) £000



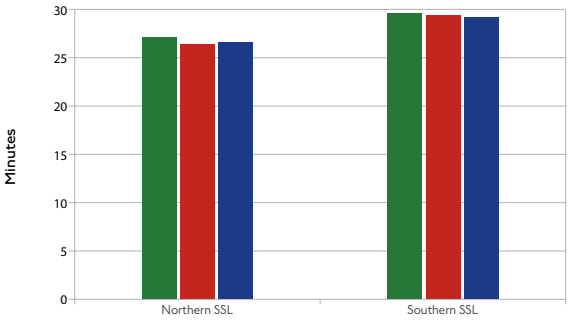
Waterloo & City line Capability
Minutes



Waterloo & City line Capability
Bonus / (Abatement) £000

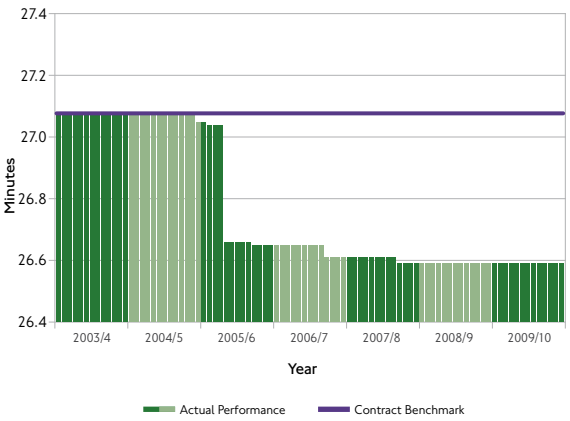


LU SSL – Aggregate Capability 2009/10

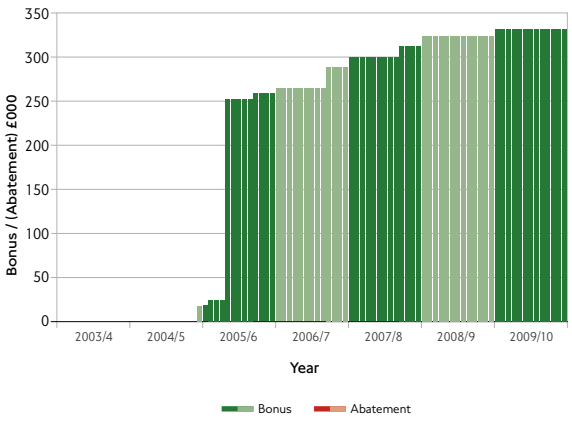


	Northern SSL	Southern SSL
Contract Benchmark	27.08	29.54
Bid Projection	26.38	29.34
Achieved	26.59	29.16

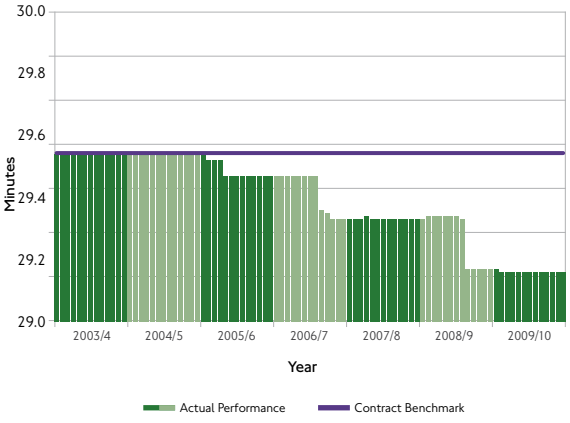
Northern SSL Capability
Minutes



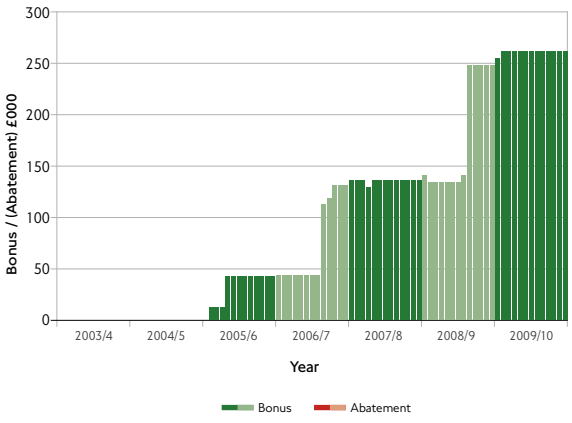
Northern SSL Capability
Bonus / (Abatement) £000



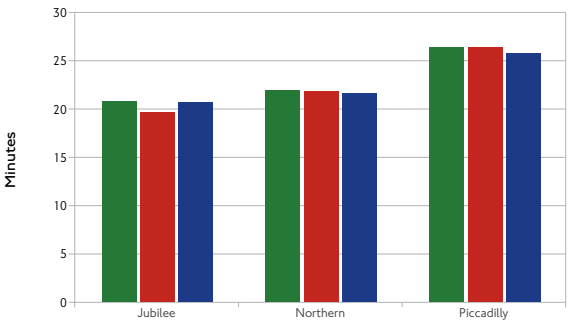
Southern SSL Capability
Minutes



Southern SSL Capability
Bonus / (Abatement) £000

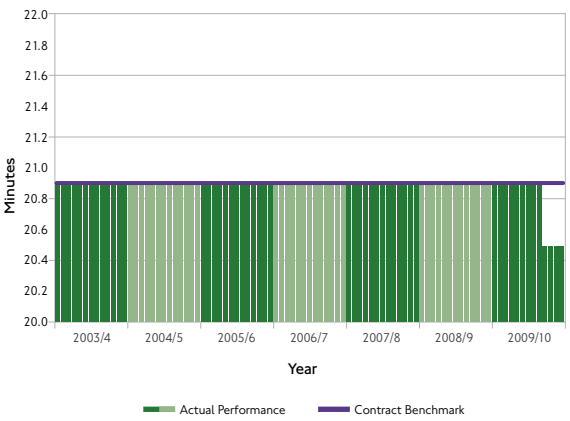


Tube Lines JNP – Aggregate Capability 2009/10

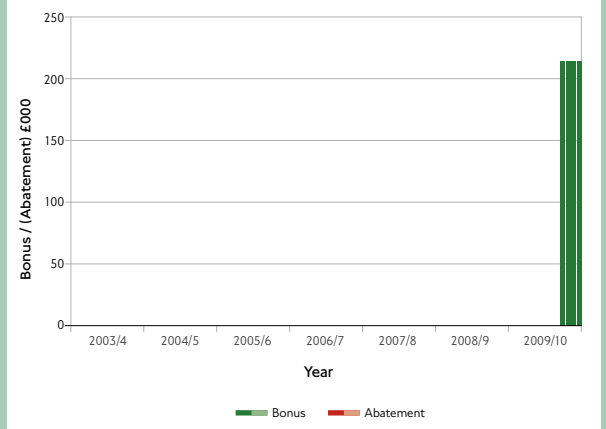


	Jubilee	Northern	Piccadilly
Contract Benchmark	20.89	22.06	26.5
Bid Projection	19.72	21.99	26.5
Achieved	20.76	21.7	25.93

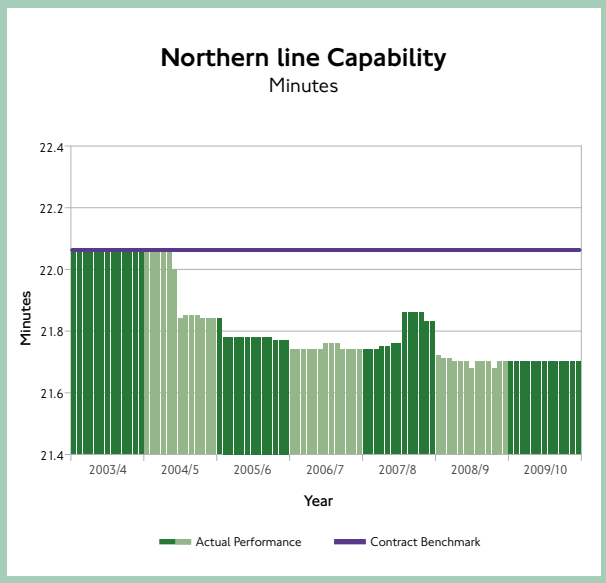
Jubilee line Capability
Minutes

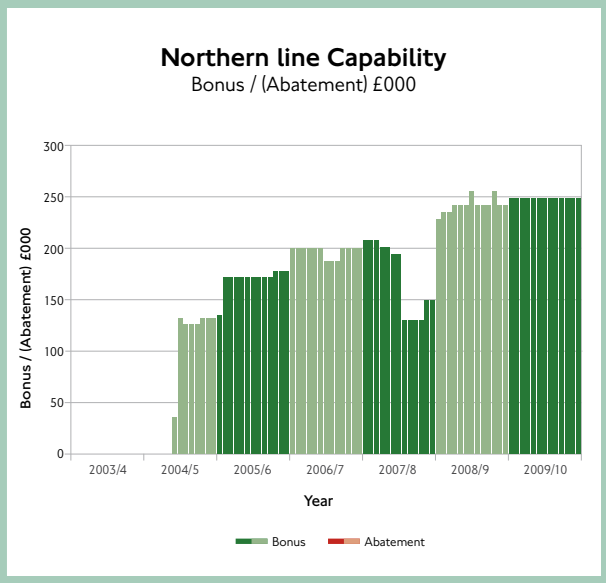


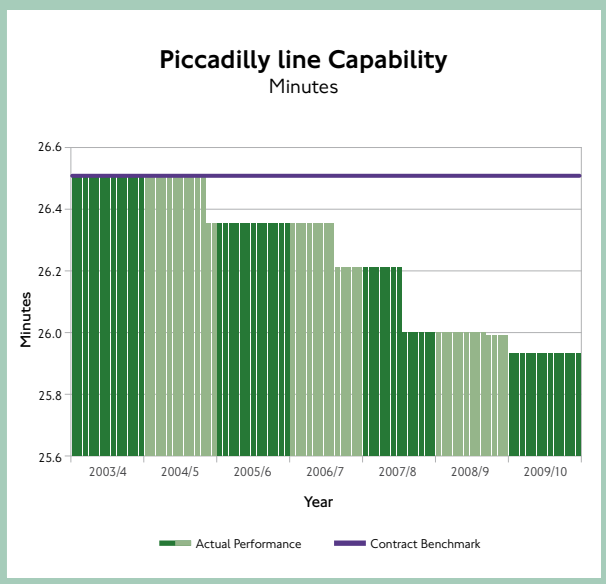
Jubilee line Capability
Bonus / (Abatement) £000

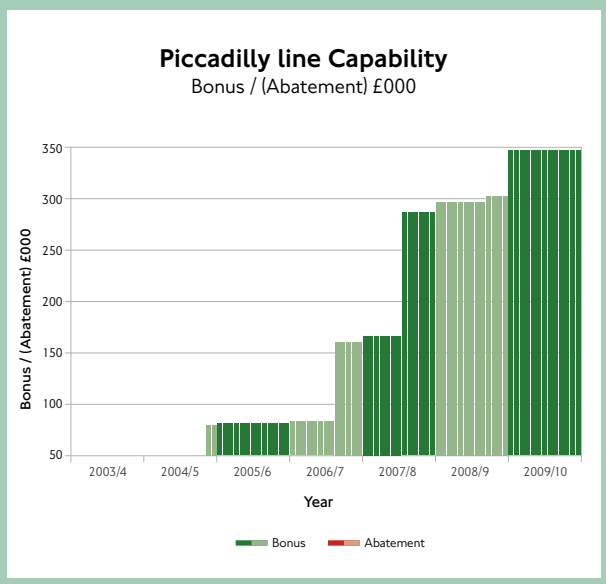


Does not include the capability improvement as a result of the introduction of the seventh car through a Specified Right.


Northern line Capability
Minutes
22.4
22.2
22.0
21.8
21.6
21.4
Minutes
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actual Performance
Contract Benchmark


Northern line Capability
Bonus / (Abatement) £000
300
250
200
150
100
50
0
Bonus / (Abatement) £000
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Bonus
Abatement

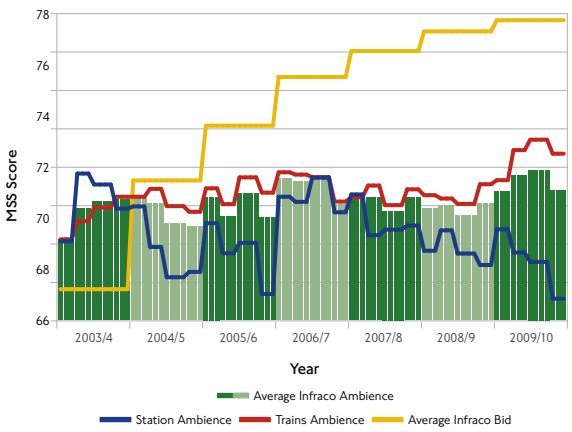

Piccadilly line Capability
Minutes
26.6
26.4
26.2
26.0
25.8
25.6
Minutes
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actual Performance
Contract Benchmark


Piccadilly line Capability
Bonus / (Abatement) £000
350
300
250
200
150
100
50
Bonus / (Abatement) £000
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Bonus
Abatement

Ambience

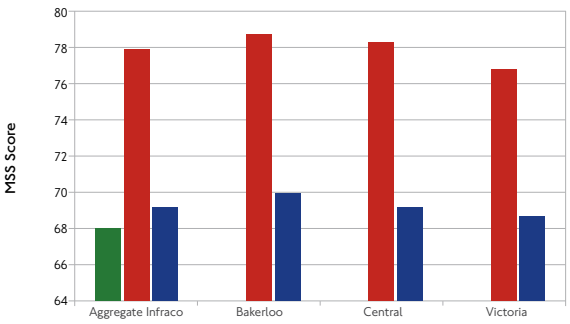
The Ambience measure looks at the quality of the travelling environment on trains and in stations based on a quarterly Mystery Shopping Survey (MSS), which is conducted by an independent accredited survey organisation. The survey assesses various aspects of the service provided to customers, including: the condition of train seats, cleanliness of surfaces and train exteriors, levels of litter and graffiti, public address audibility, ride quality and in-car noise, lighting, train heating and ventilation, quality of signage, and the condition of toilets and waiting rooms. The benchmarks in the contracts were set at levels better than historic London Underground performance and apply at an Infraco rather than a line level.

Average Infraco Ambience Performance



LU BCV – Ambience

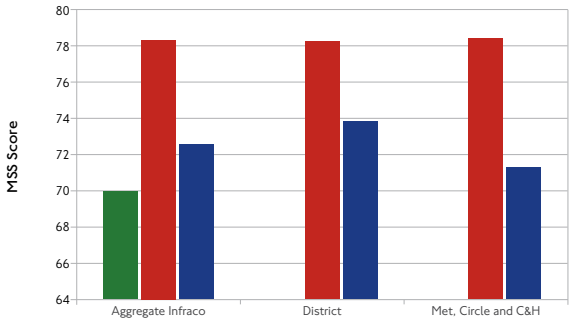
Average MSS Score 2009/10



Contract Benchmark	68 .00	-	-	-
Bid Projection	77.96	78.76	78.30	76.85
Achieved	69.17	69.98	69.16	68.70

LU SSL– Ambience

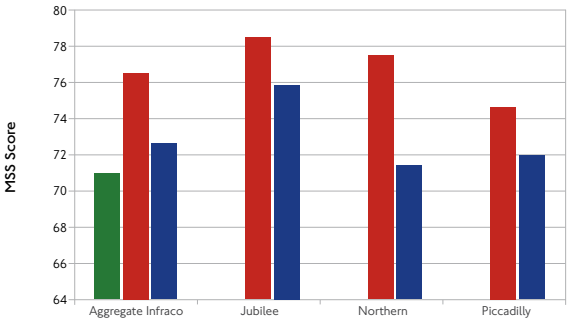
Average MSS Score 2009/10



Contract Benchmark	70.00	-	-
Bid Projection	78.35	78.27	78.43
Achieved	72.57	73.85	71.28

Tube Lines JNP – Ambience

Average MSS Score 2009/10



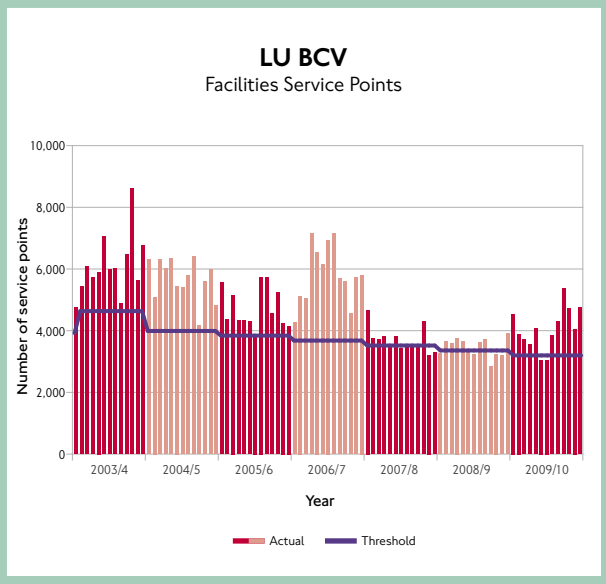
Contract Benchmark	71.00	-	-	-
Bid Projection	76.53	78.50	77.48	74.64
Achieved	72.63	75.86	71.39	71.94

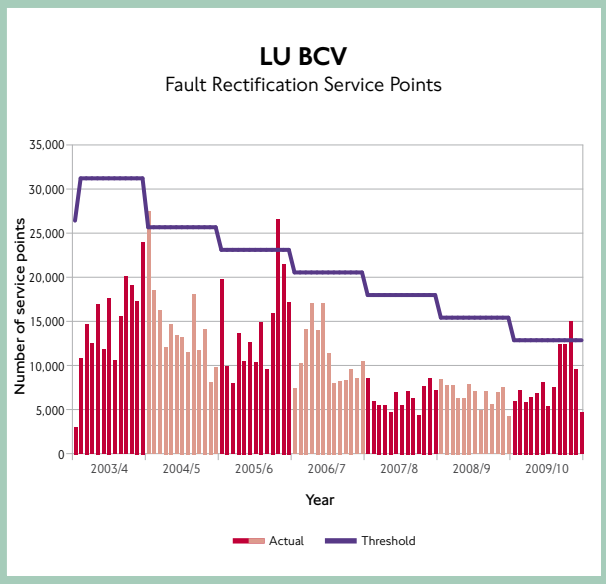
Service points

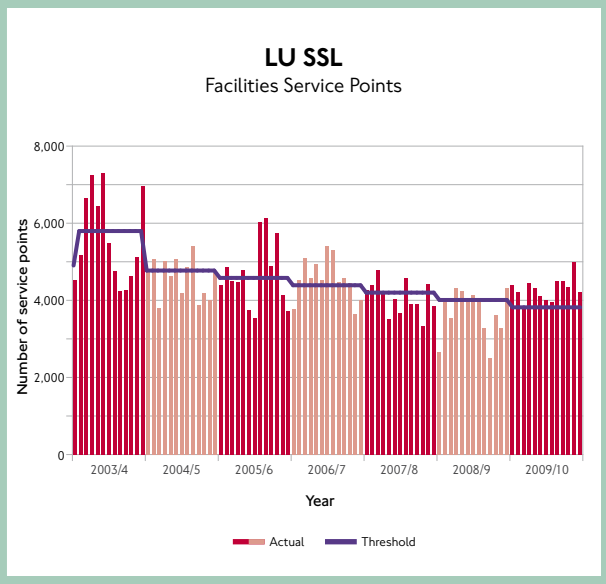
Service points are allocated for failures by the Infracos to meet certain contractual obligations:

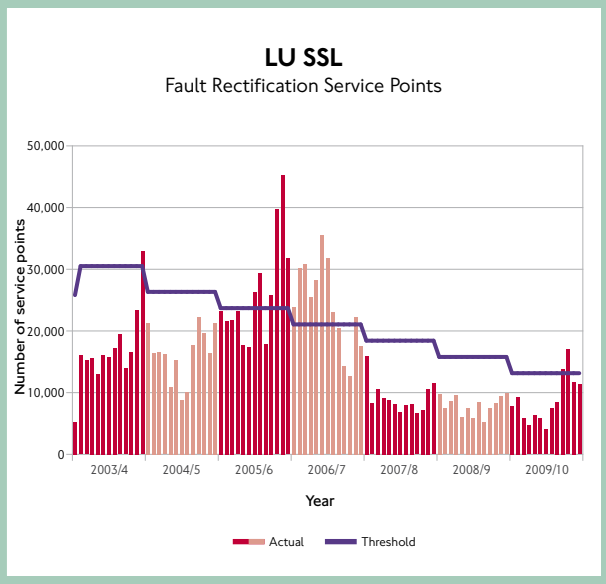
- Facilities faults — failure of customer facing assets such as CCTV, public address systems, train arrival indicators or help points
- Fault rectification — failure to fix certain problems such as litter and spillages, defective escalators, pumps and drains within the standard clearance times set out in the contract
- Engineering overruns — failure to return the railway for operational use on time following engineering work

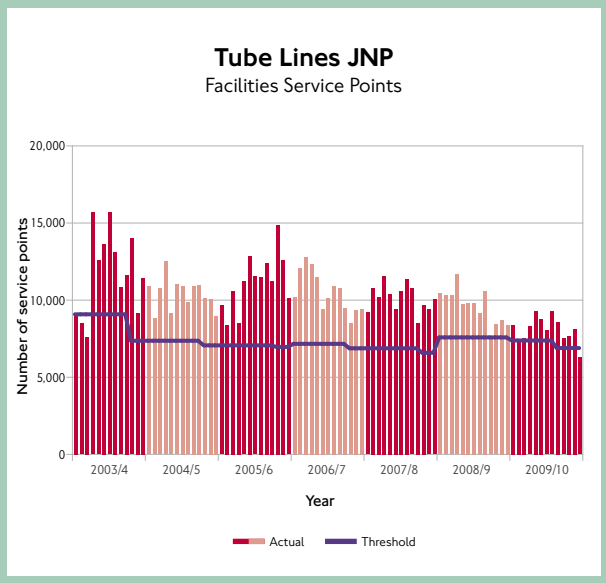
Each Infraco has a service point threshold for Facilities faults and Fault Rectification faults, above which abatements are charged. The threshold for engineering overruns is zero which reflects the severe effects these events have on customer service.

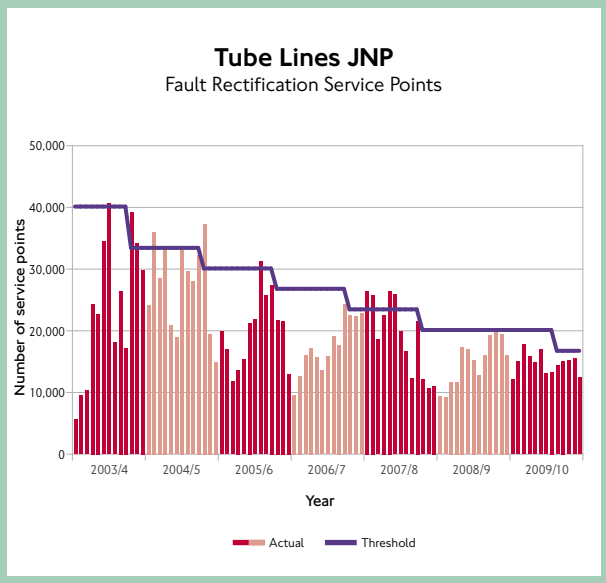


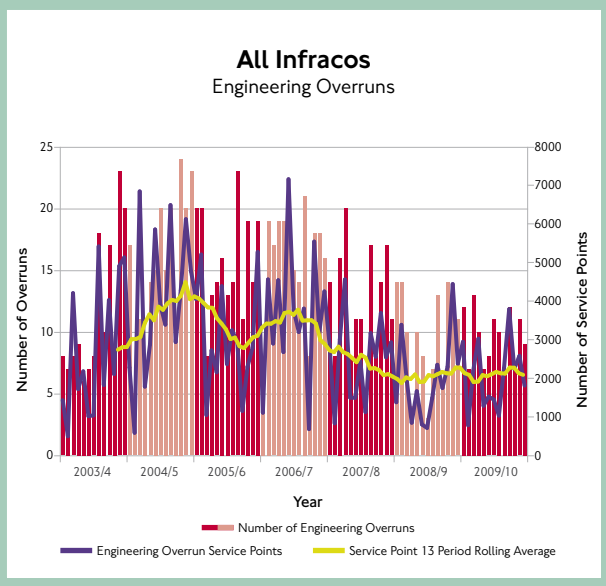


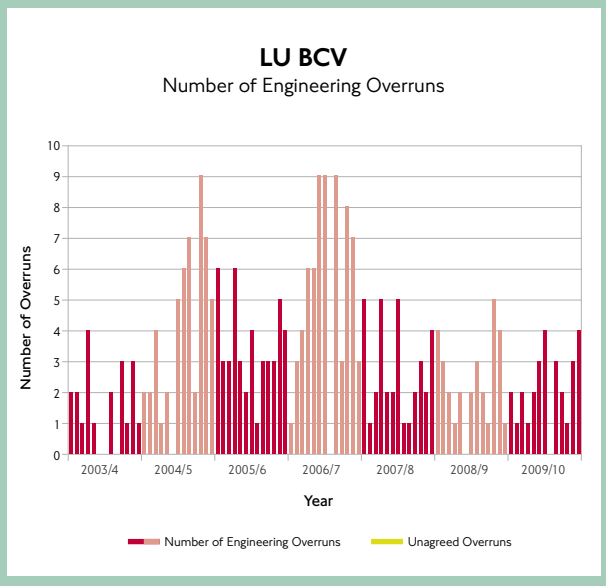


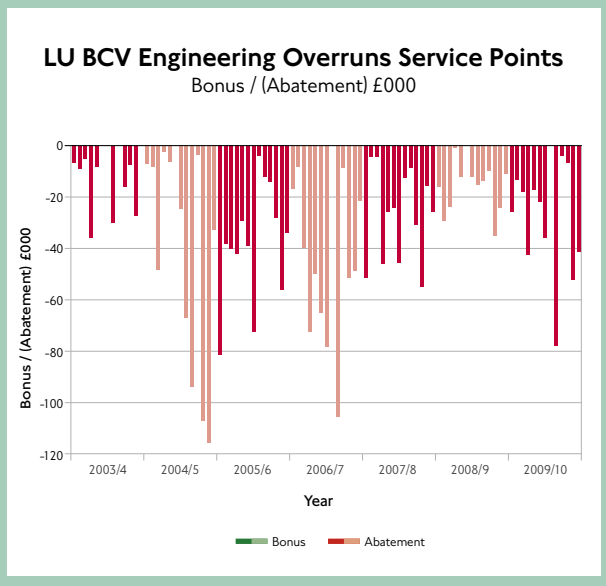



Tube Lines JNP
Facilities Service Points
Number of service points
20,000
15,000
10,000
5,000
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actual
Threshold

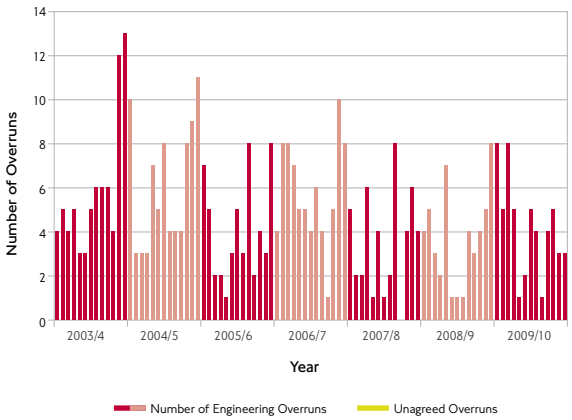

Tube Lines JNP
Fault Rectification Service Points
Number of service points
50,000
40,000
30,000
20,000
10,000
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actual
Threshold


All Infracos
Engineering Overruns
Number of Overruns
Number of Service Points
25
20
15
10
5
0
8000
7000
6000
5000
4000
3000
2000
1000
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Number of Engineering Overruns
Engineering Overrun Service Points
Service Point 13 Period Rolling Average

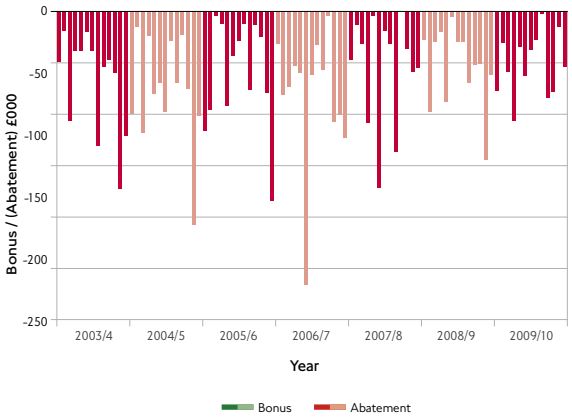

LU BCV
Number of Engineering Overruns
Number of Overruns
10
9
8
7
6
5
4
3
2
1
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Number of Engineering Overruns
Unagreed Overruns


LU BCV Engineering Overruns Service Points
Bonus / (Abatement) £000
Bonus / (Abatement) £000
0
-20
-40
-60
-80
-100
-120
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Bonus
Abatement

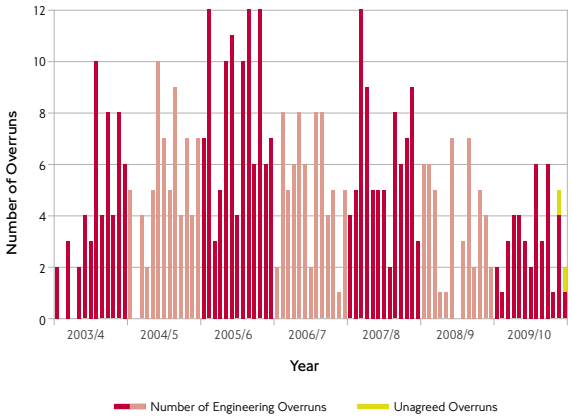
LU SSL
Number of Engineering Overruns



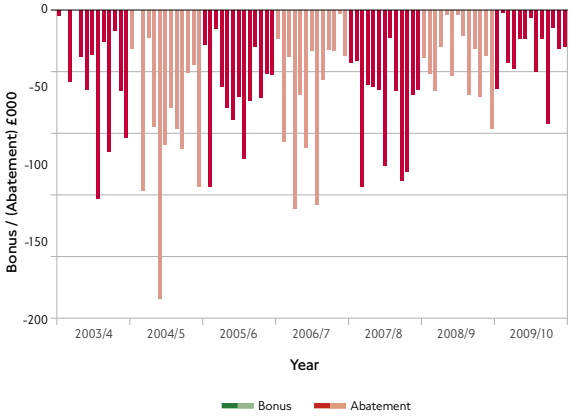
LU SSL Engineering Overruns Service Points
Bonus / (Abatement) £000



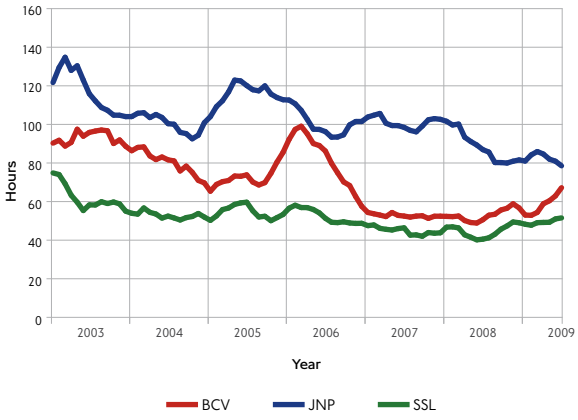
Tube Lines JNP
Number of Engineering Overruns



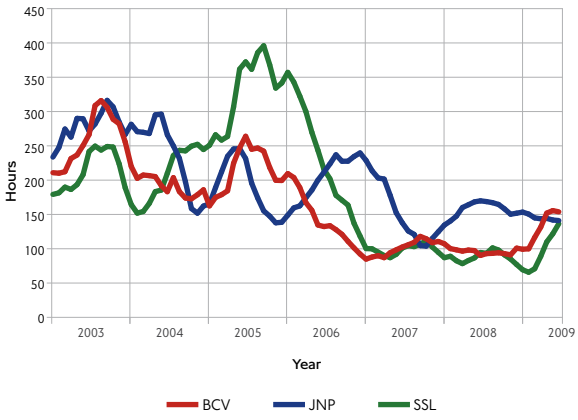
Tube Lines JNP Engineering Overruns Service Points
Bonus / (Abatement) £000



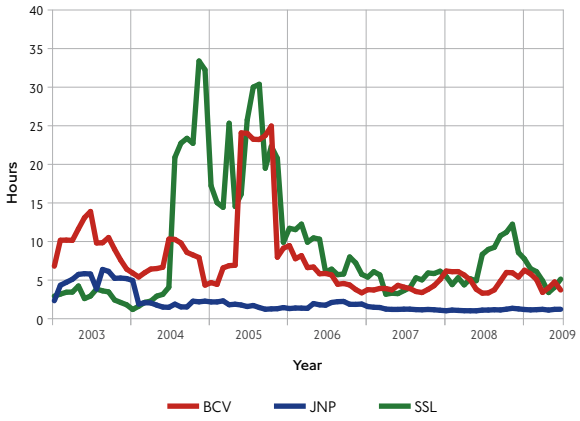
Facilities Service Points per Station
Six Period Rolling Average



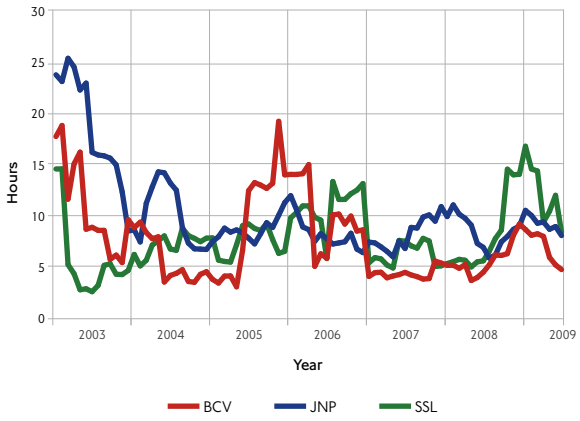
Fault Rectification Service Points per Station
Six Period Rolling Average



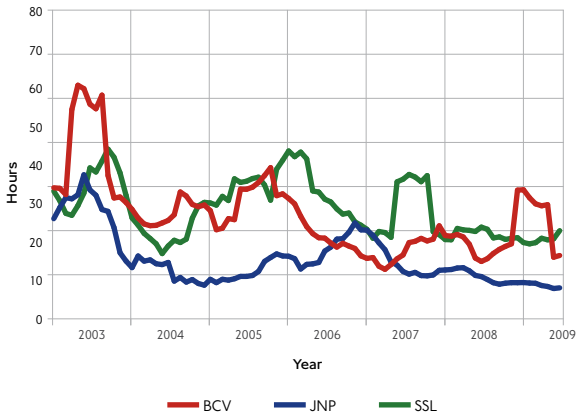
Fix Time – Litter and Spillages
Six Period Rolling Average



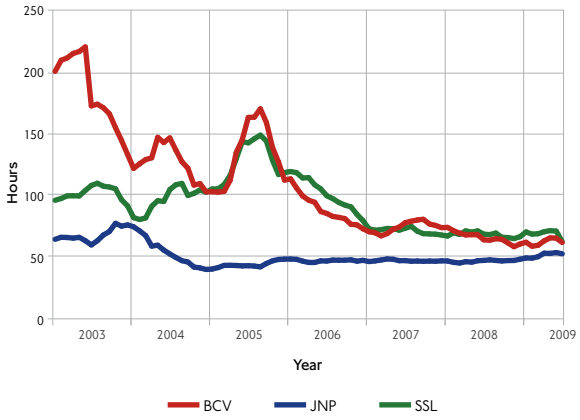
Fix Time – Mobility Impaired Persons Lifts
Six Period Rolling Average



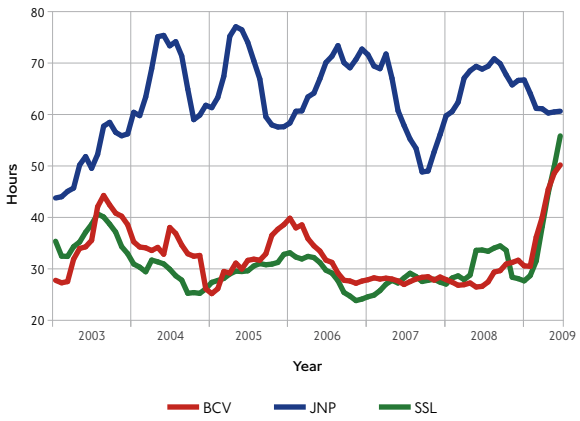
Fix Time – Other Cleaning (including graffiti)
Six Period Rolling Average



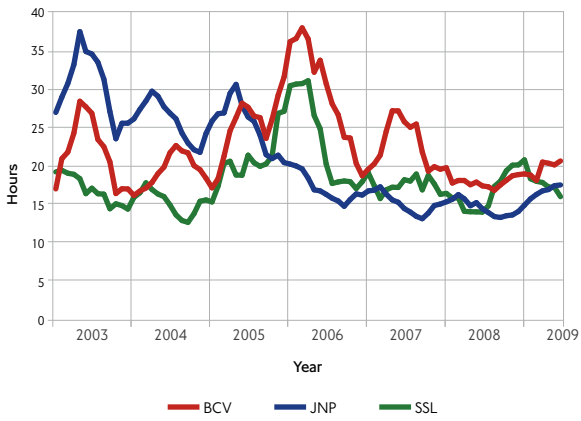
Fix Time – Premises and Structures
Six Period Rolling Average



Fix Time – Station Services
(Lighting, Comms, Alarm Systems, Mech. Services, Power & Electrical etc.)
Six Period Rolling Average



Fix Time – Station Systems
(PA, DMIs, CCTV, Help Points, Clocks)
Six Period Rolling Average

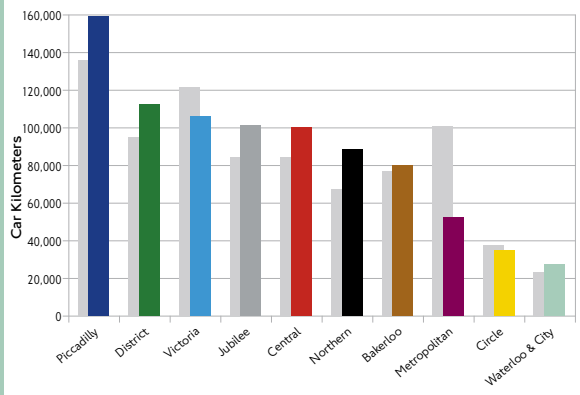


Maintenance and asset performance

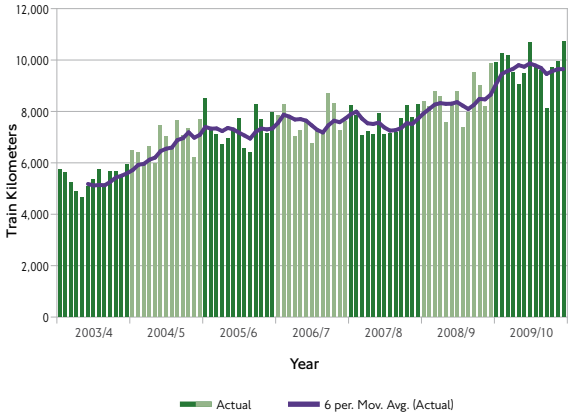
The performance of key assets such as track, rolling stock, signalling, and escalators is critical to service reliability and drives the Availability measure described earlier in this chapter. The Infracos' maintenance activity will directly impact asset performance and this section reviews performance across four key asset groups (rolling stock, signalling and control systems, track, and lifts and escalators) to provide an insight into the Infracos' maintenance performance.

Industry standards are used rather than contractual metrics here. Rolling stock performance is measured in Mean Distance Between Failure (MDBF), whereas Signalling and control systems and Track are judged on the average duration of delays greater than two-minutes due to failure. The performance of Lifts and Escalators is measured in both the average fix times and the time between failures.

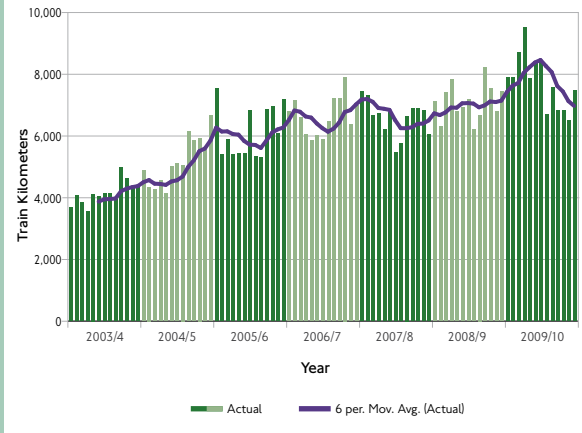
Rolling Stock Mean Distance Between Failure (MDBF)
2009/10 against previous year shaded



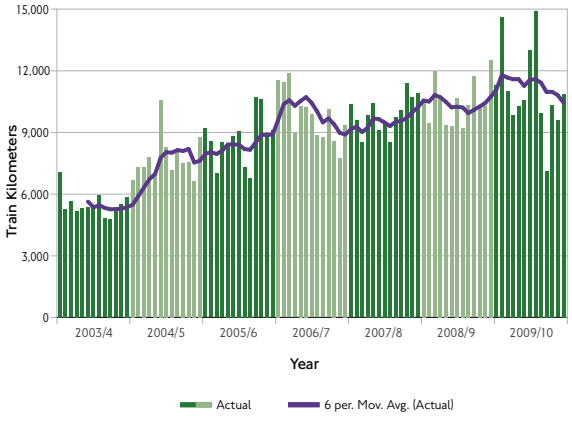
Rolling Stock – All Infracos
Average Mean Distance Between Failures (in service) based on LUCC



Rolling Stock – LU BCV
Average Mean Distance Between Failures (in service) based on LUCC

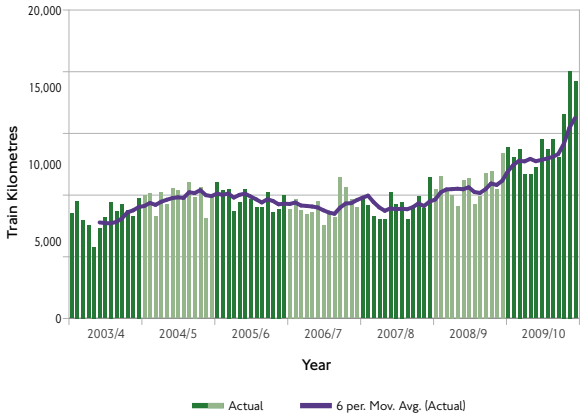


Rolling Stock – LU SSL
Average Mean Distance Between Failures (in service) based on LUCC



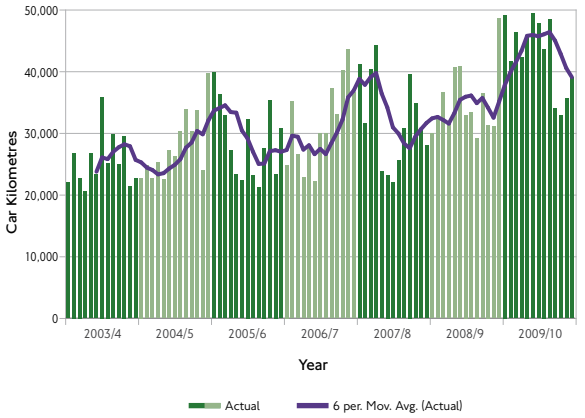
Rolling Stock – Tube Lines JNP

Average Mean Distance Between Failures (in service) based on LUCC



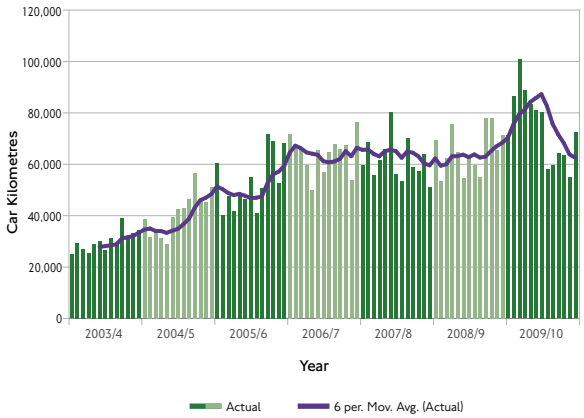
Rolling Stock – Bakerloo line

Average Mean Distance Between Failures (in service) based on LUCC



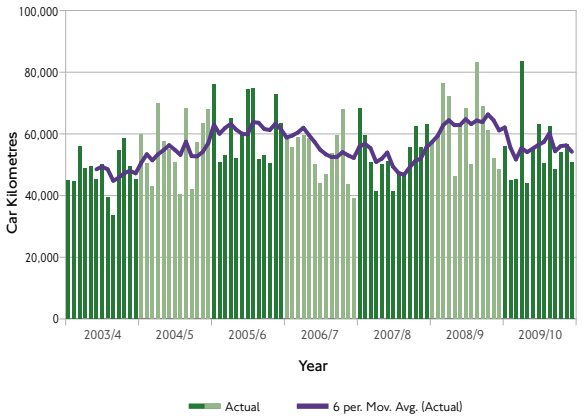
Rolling Stock – Central line

Average Mean Distance Between Failures (in service) based on LUCC



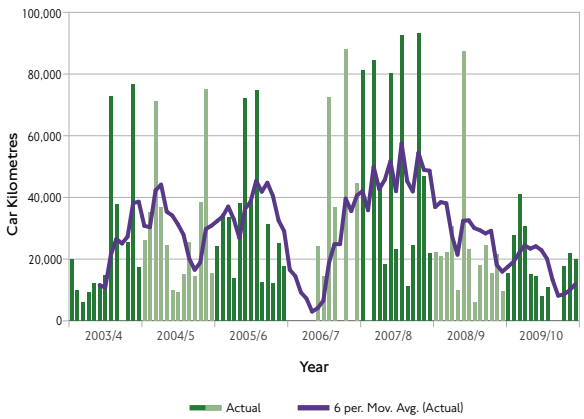
Rolling Stock – Victoria line

Average Mean Distance Between Failures (in service) based on LUCC



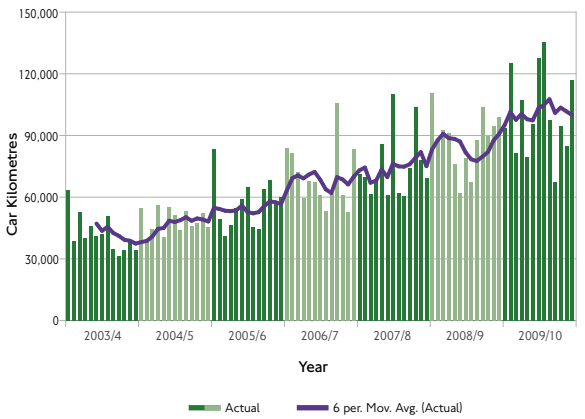
LU BCV – Waterloo & City line

Average Mean Distance Between Failures (in service) based on LUCC



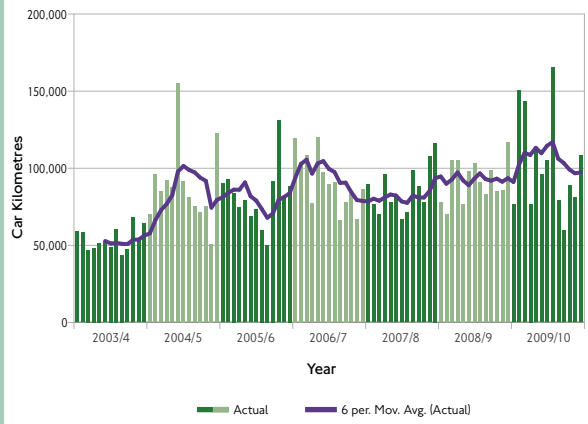
LU SSL – Metropolitan line

Average Mean Distance Between Failures (in service) based on LUCC



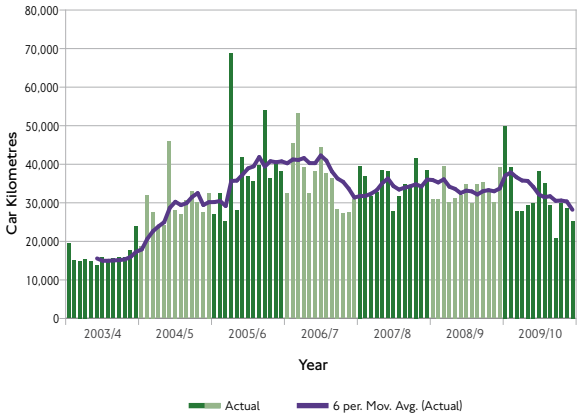
Rolling Stock – District line

Average Mean Distance Between Failures (in service) based on LUCC



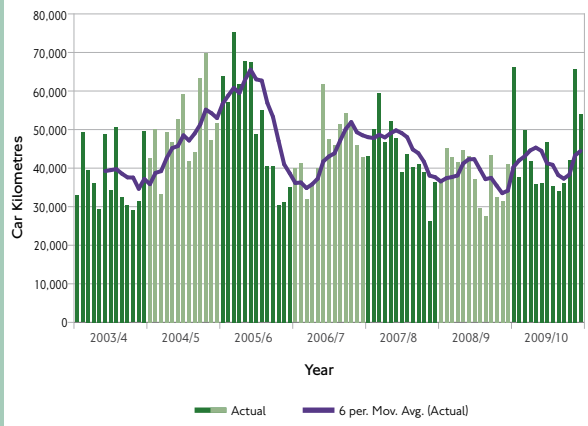
Rolling Stock – Circle line

Average Mean Distance Between Failures (in service) based on LUCC



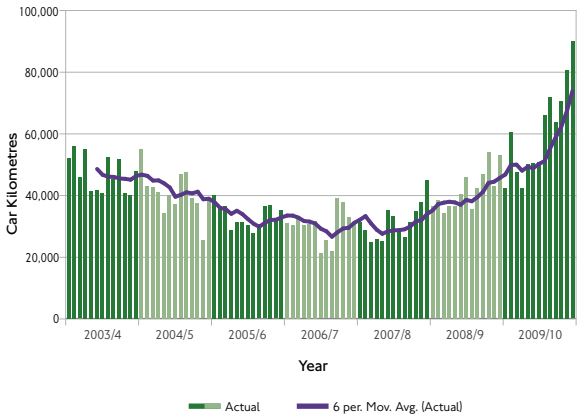
Rolling Stock – Jubilee line

Average Mean Distance Between Failures (in service) based on LUCC



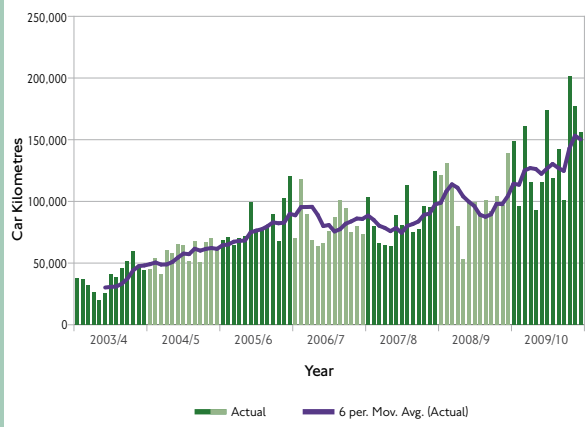
Rolling Stock – Northern line

Average Mean Distance Between Failures (in service) based on LUCC



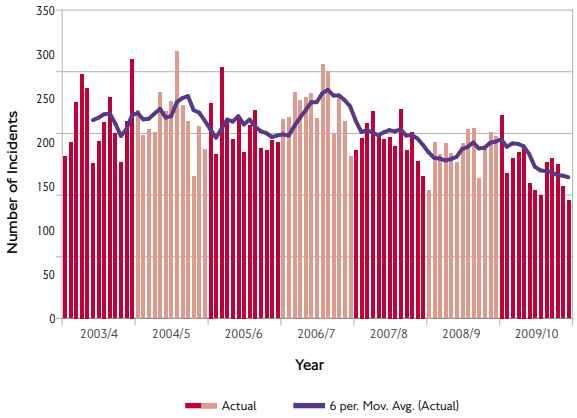
LU BCV – Piccadilly line

Average Mean Distance Between Failures (in service) based on LUCC



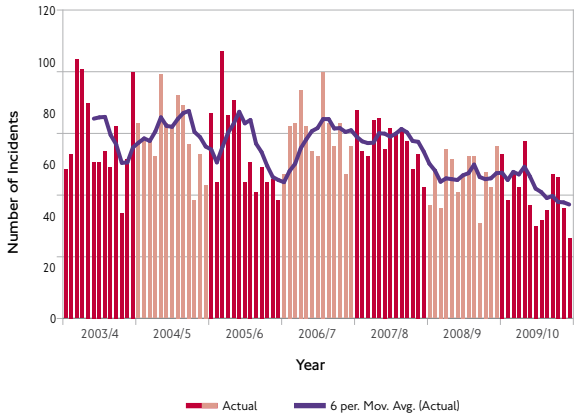
Train Control – All Infracos

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



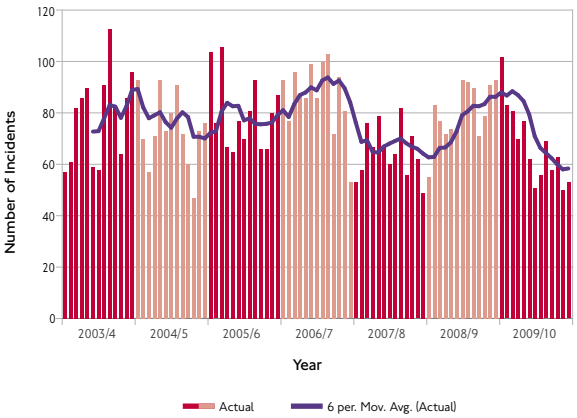
Train Control – LU BCV

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



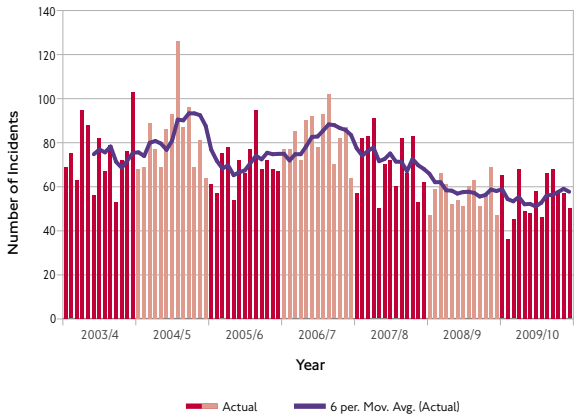
Train Control – LU SSL

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



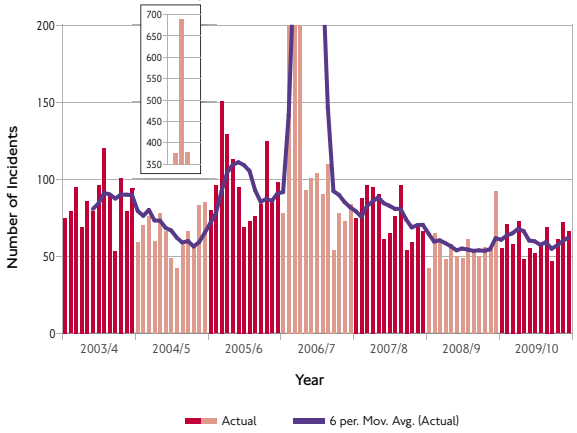
Train Control – Tube Lines JNP

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



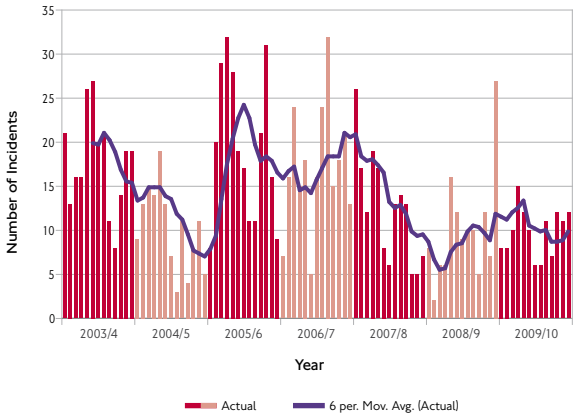
Track – All Infracos

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



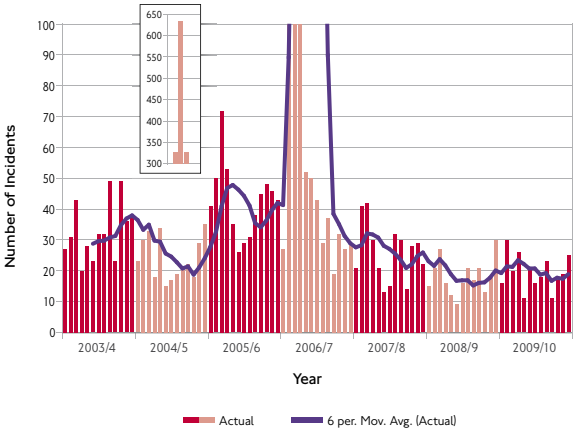
Track – LU BCV

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



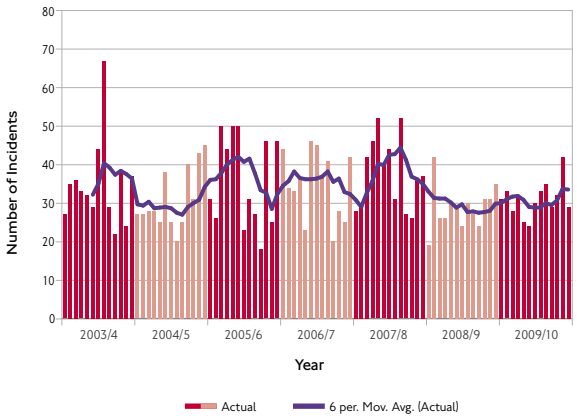
Track – LU SSL

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



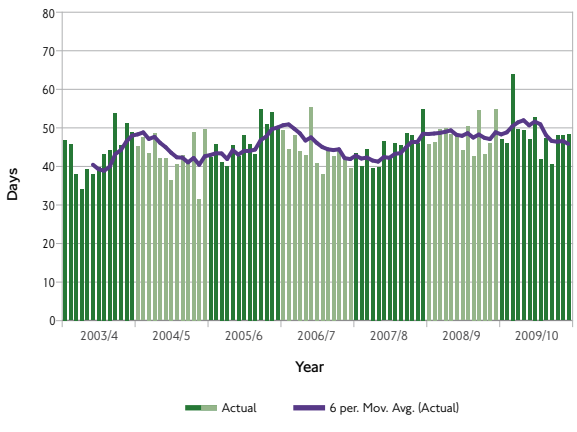
Track – Tube Lines JNP

Number of In Service Failures Resulting in Service Disruption > 2 minutes (Based on LUCC)



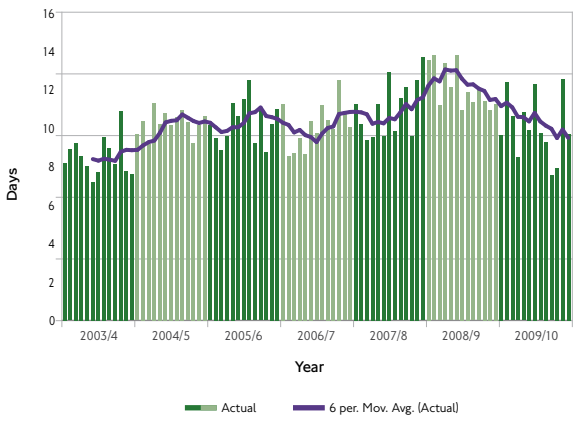
Total all Infracos – Escalators

Mean Time Between Failures (days) based on LUCC



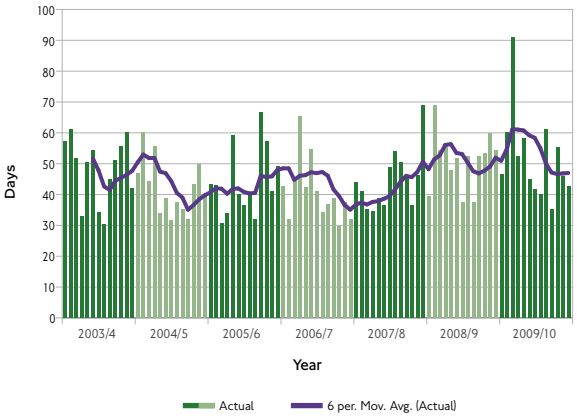
Total all Infracos – Lifts

Mean Time Between Failures (days) based on LUCC



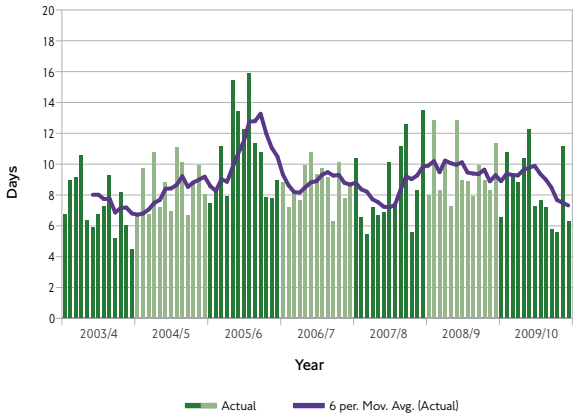
LU BCV – Escalators

Mean Time Between Failures (days) based on LUCC



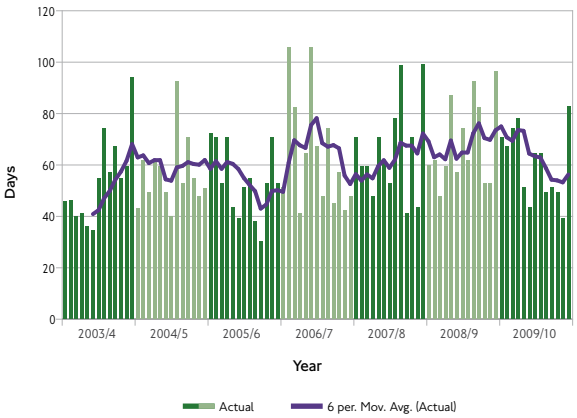
LU BCV – Lifts

Mean Time Between Failures (days) based on LUCC



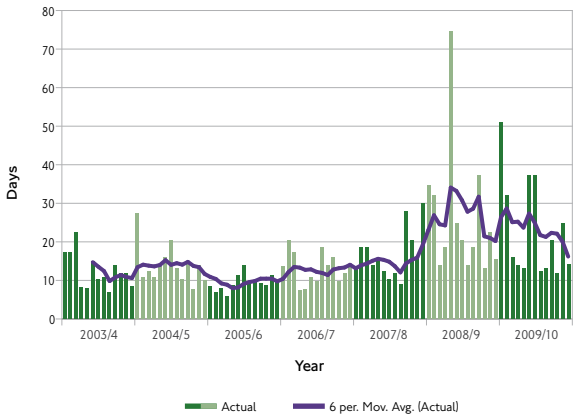
LU SSL – Escalators

Mean Time Between Failures (days) based on LUCC



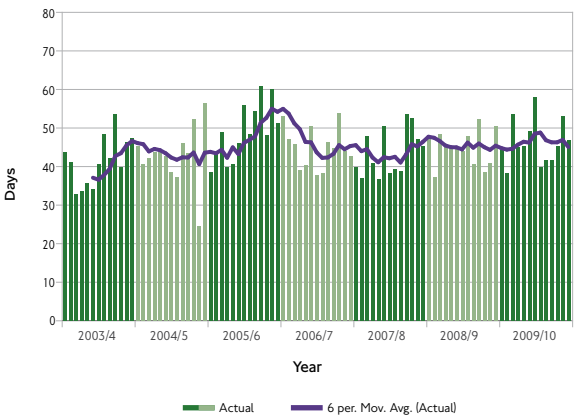
LU SSL – Lifts

Mean Time Between Failures (days) based on LUCC



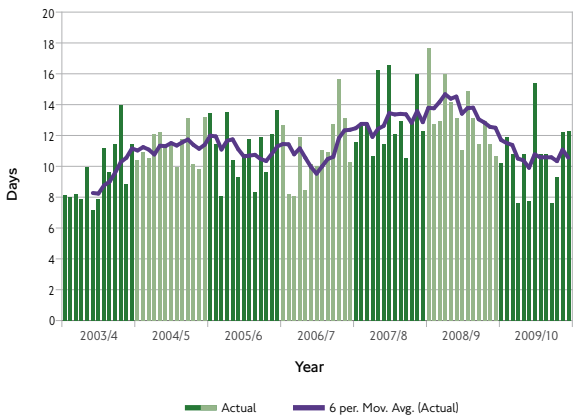
Tube Lines JNP – Escalators

Mean Time Between Failures (days) based on LUCC

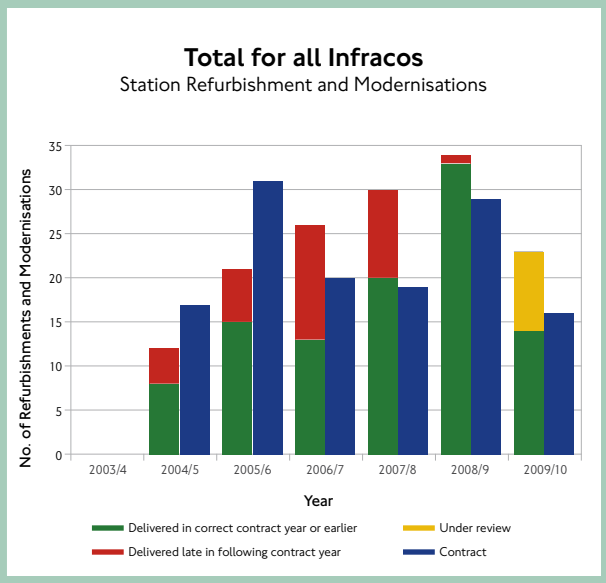


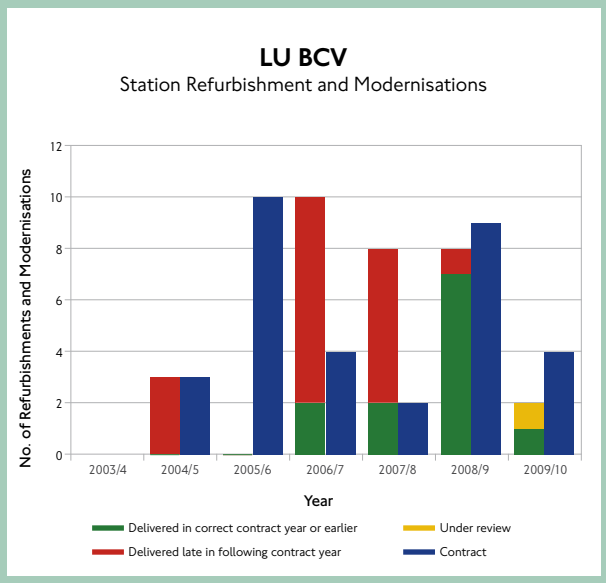
Tube Lines JNP – Lifts

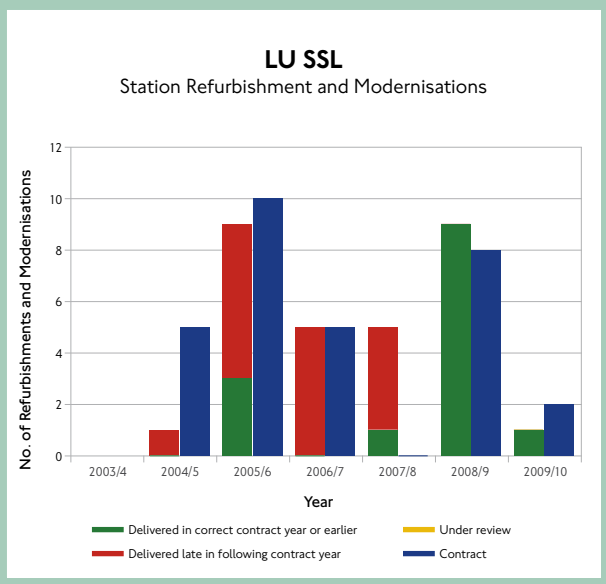
Mean Time Between Failures (days) based on LUCC

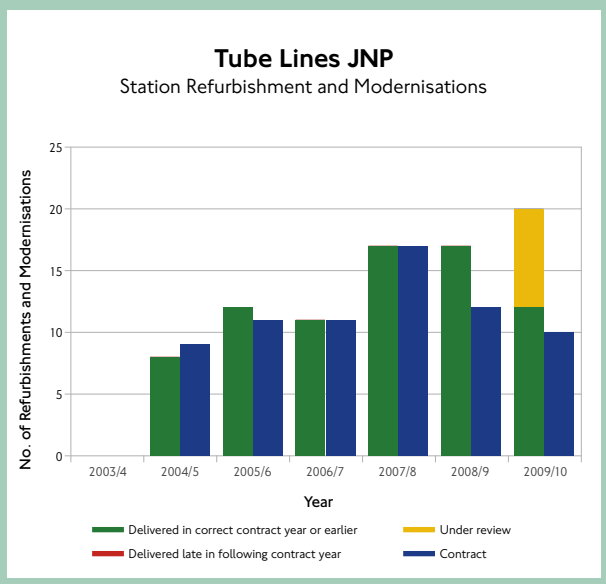


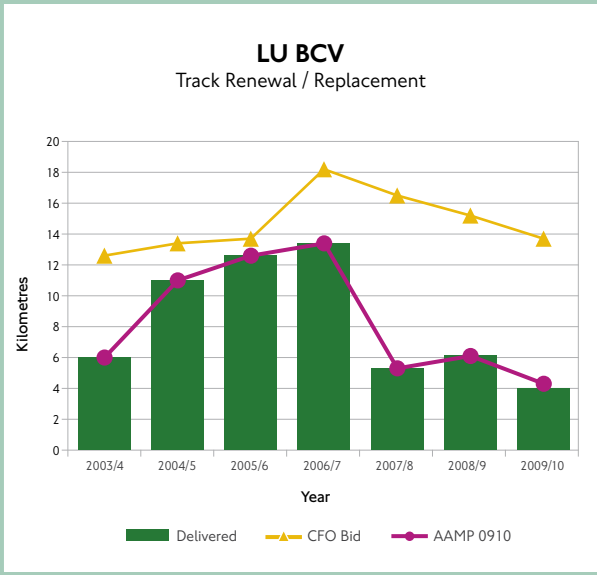
Asset Renewal and Enhancement

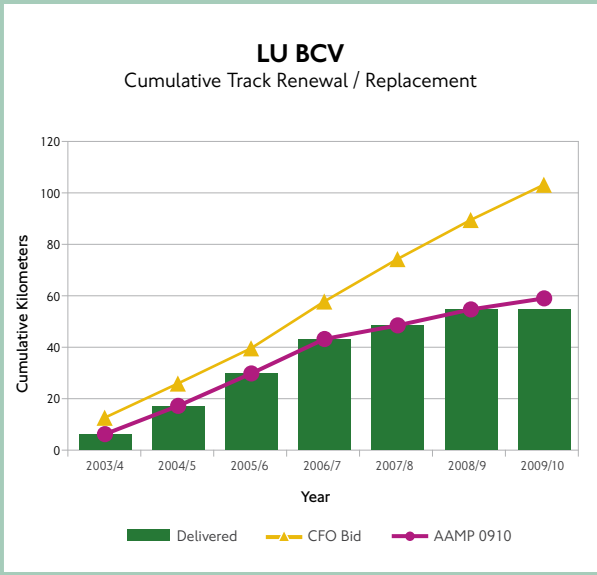


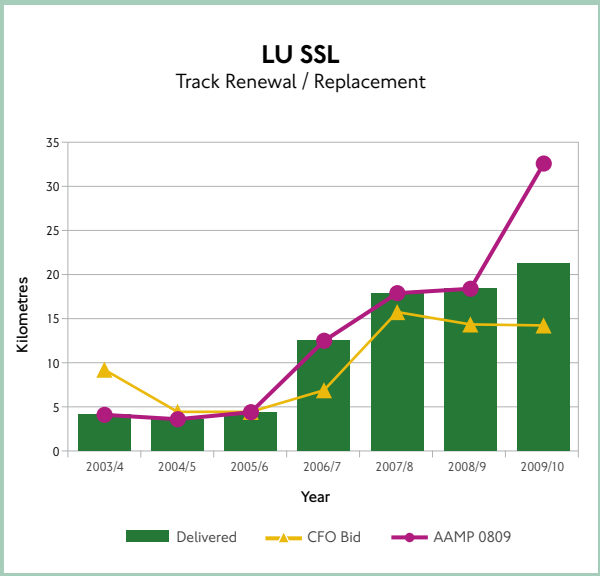


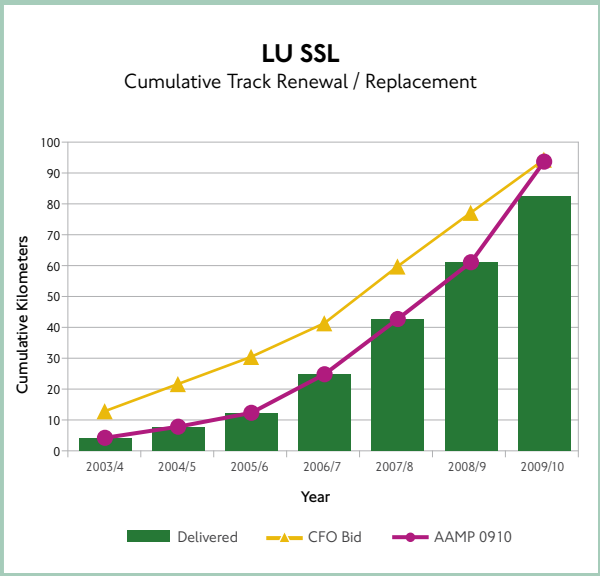


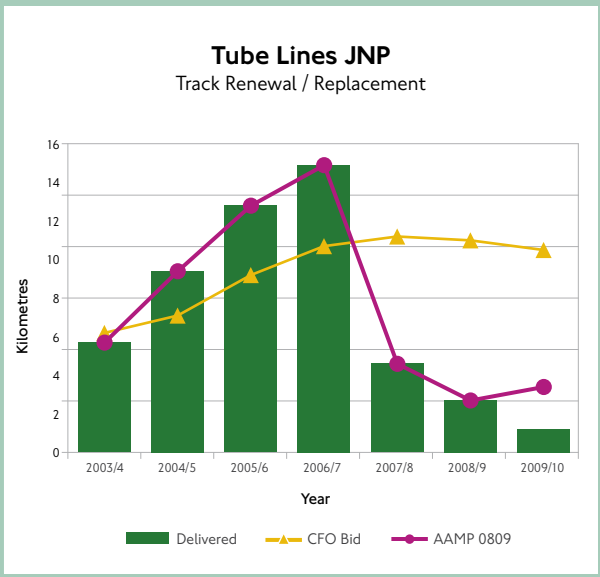


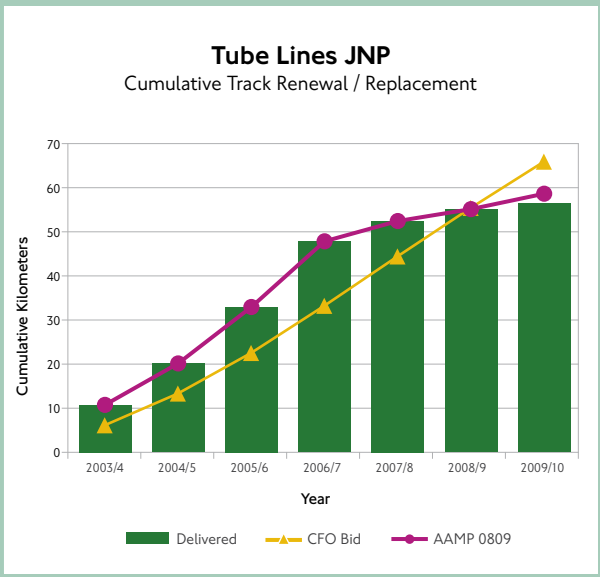

LU BCV
Track Renewal / Replacement
Kilometres
Year
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Delivered
CFO Bid
AAMP 0910


LU BCV
Cumulative Track Renewal / Replacement
Cumulative Kilometers
Year
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Delivered
CFO Bid
AAMP 0910

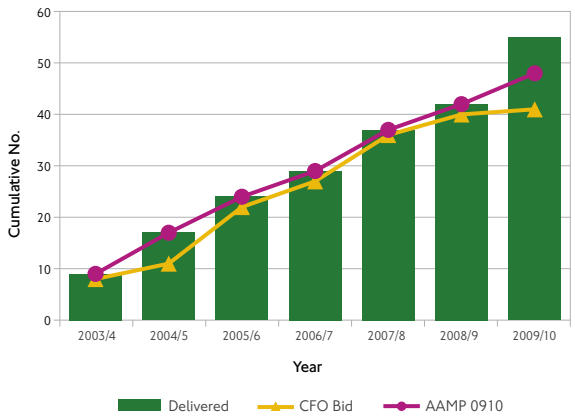

LU SSL
Track Renewal / Replacement
Kilometres
Year
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Delivered
CFO Bid
AAMP 0809


LU SSL
Cumulative Track Renewal / Replacement
Cumulative Kilometers
Year
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Delivered
CFO Bid
AAMP 0910

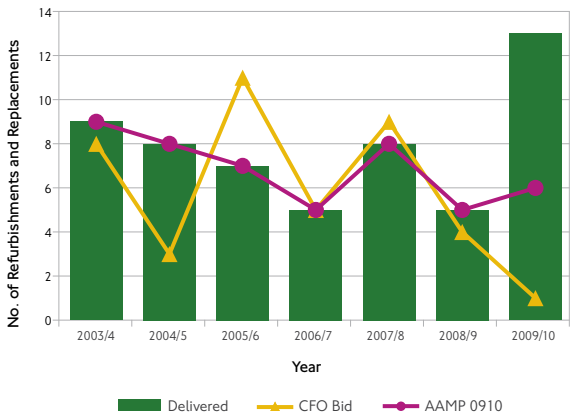

Tube Lines JNP
Track Renewal / Replacement
Kilometres
Year
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Delivered
CFO Bid
AAMP 0809


Tube Lines JNP
Cumulative Track Renewal / Replacement
Cumulative Kilometers
Year
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Delivered
CFO Bid
AAMP 0809

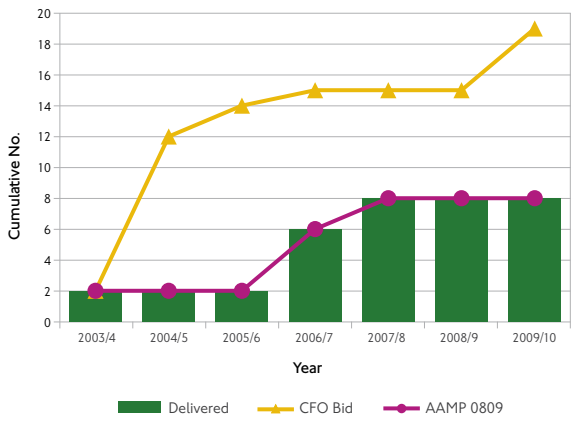
LU BCV
Escalators Refurbishments and Replacement



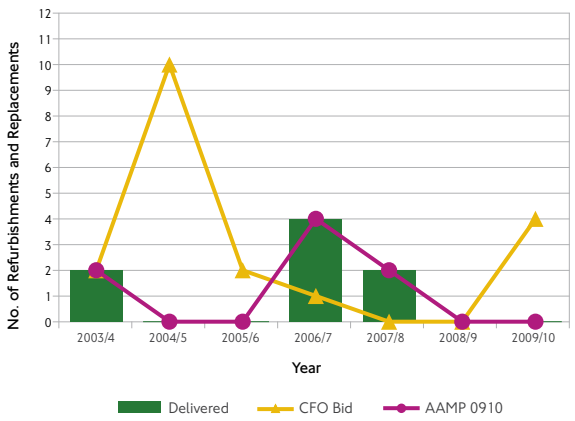
LU BCV
Escalators Refurbishments and Replacement



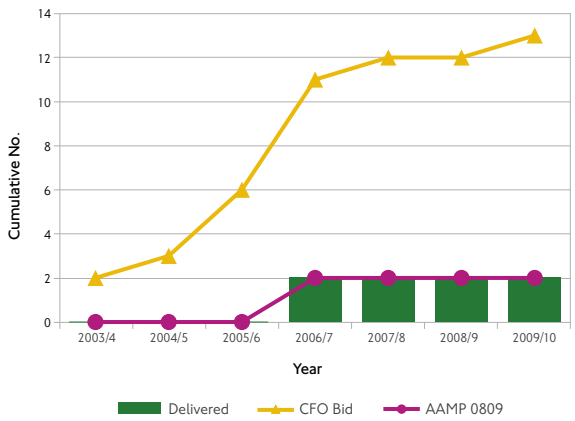
LU BCV
Lift (Passenger Service) Refurbishment and Replacement



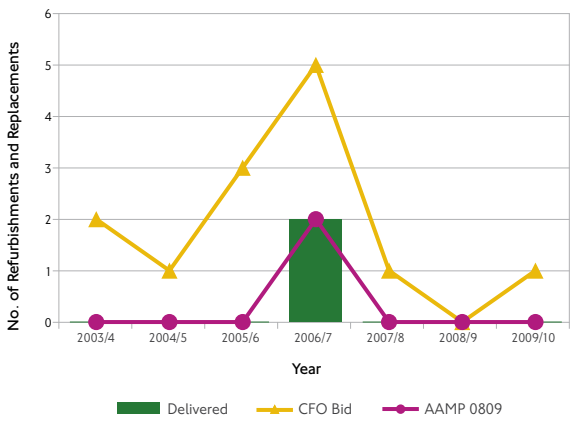
LU BCV
Lifts Refurbishment and Replacement



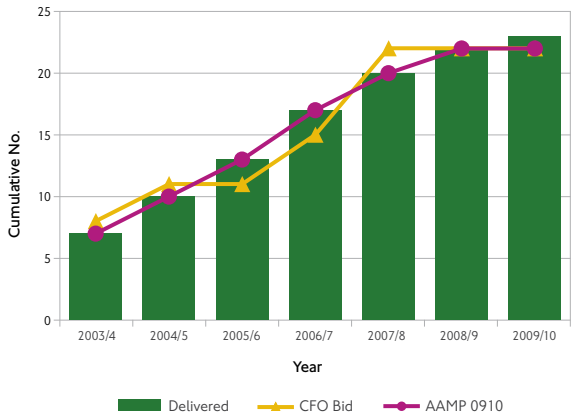
LU BCV
Step Free Access Lift Refurbishment and Replacement



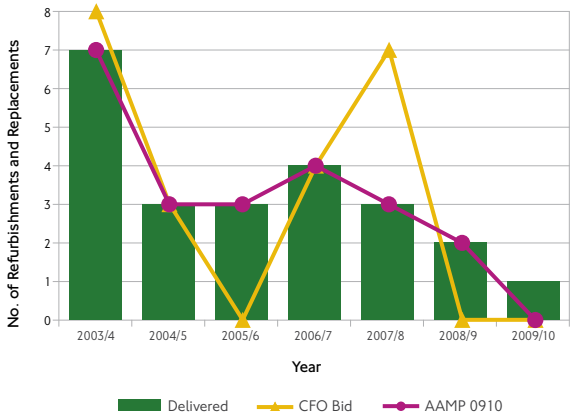
LU BCV
Step Free Access Lifts Refurbishment and Replacement



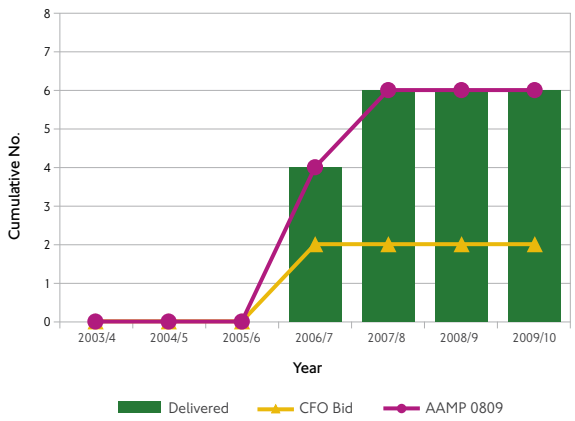
LU SSL
Escalators Refurbishments and Replacement



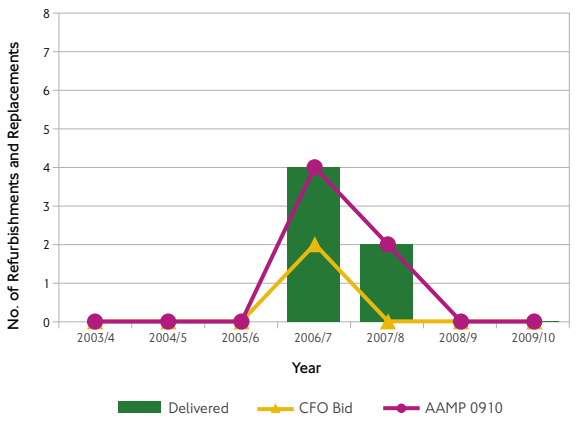
LU SSL
Escalators Refurbishments and Replacement



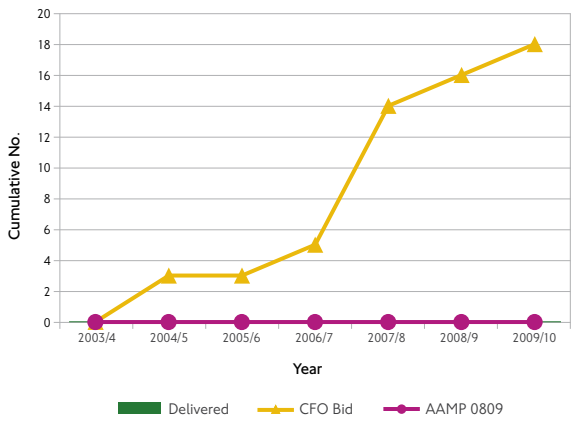
LU SSL
Lift (Passenger Service) Refurbishment and Replacement



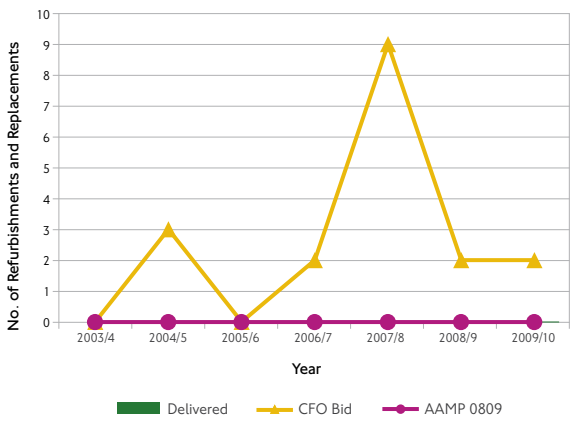
LU SSL
Lifts Refurbishment and Replacement

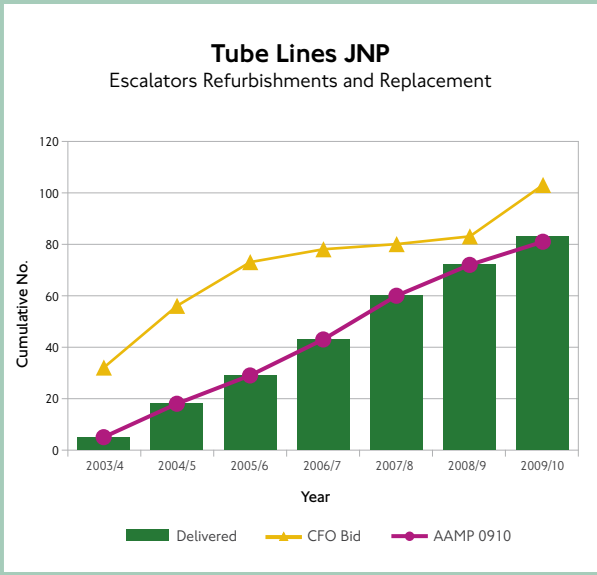


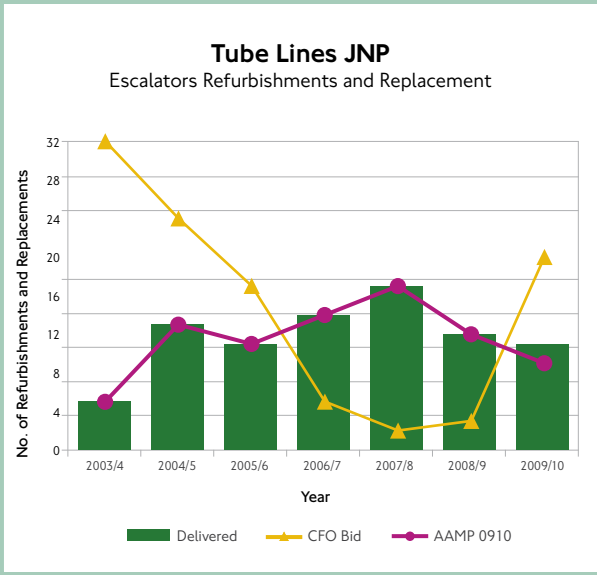
LU SSL
Step Free Access Lift Refurbishment and Replacement

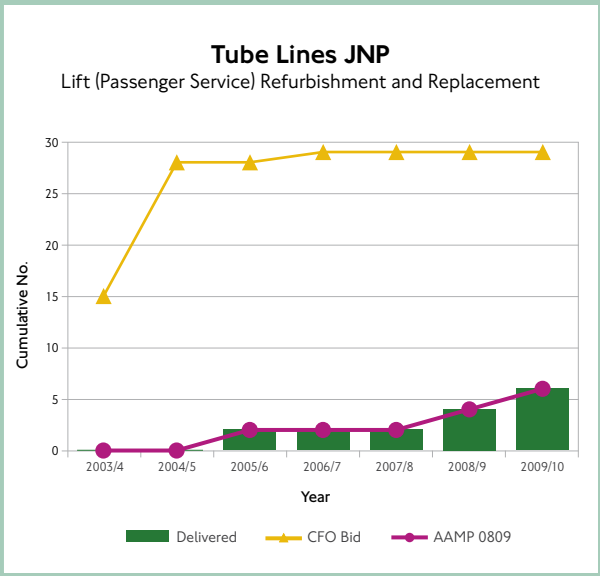


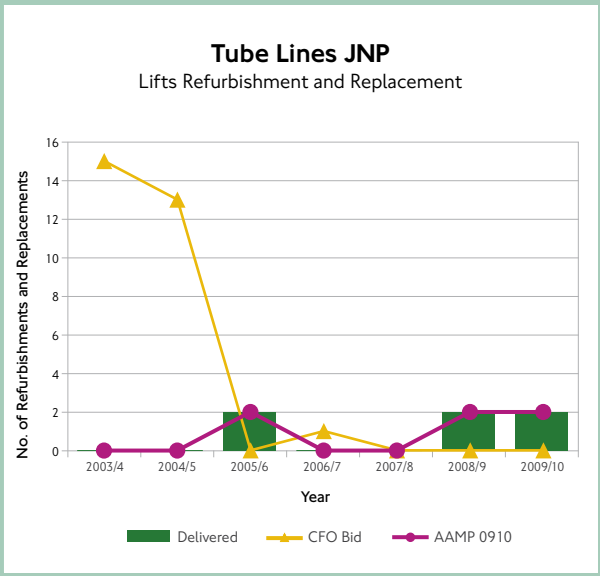
LU SSL
Step Free Access Lifts Refurbishment and Replacement

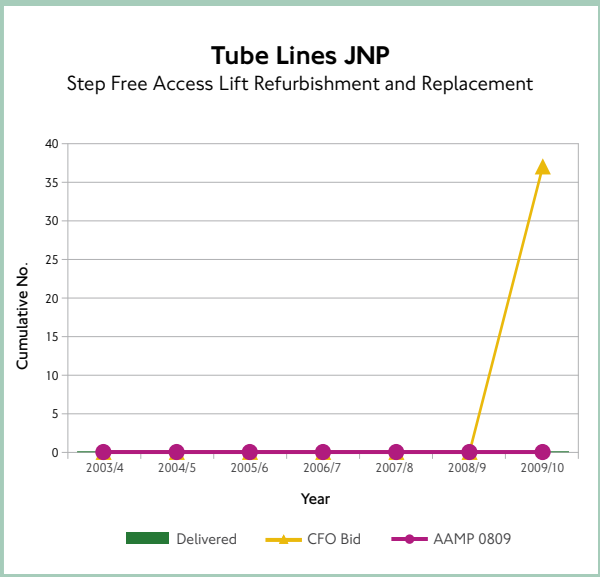


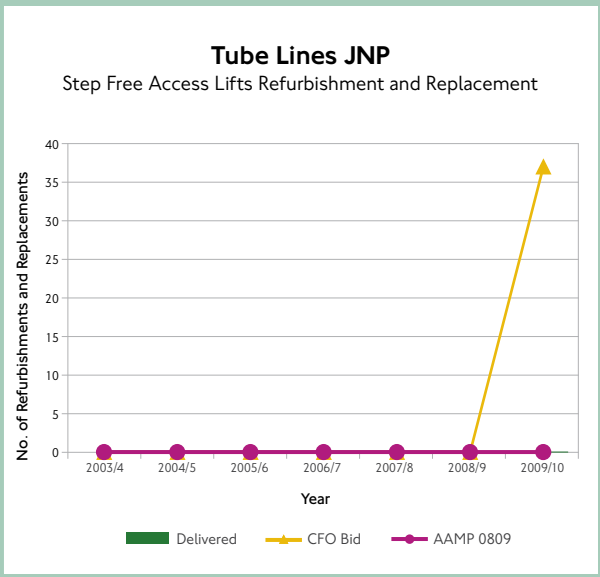

Tube Lines JNP
Escalators Refurbishments and Replacement
Cumulative No.
120
100
80
60
40
20
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Delivered
CFO Bid
AAMP 0910


Tube Lines JNP
Escalators Refurbishments and Replacement
No. of Refurbishments and Replacements
32
28
24
20
16
12
8
4
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Delivered
CFO Bid
AAMP 0910


Tube Lines JNP
Lift (Passenger Service) Refurbishment and Replacement
Cumulative No.
30
25
20
15
10
5
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Delivered
CFO Bid
AAMP 0809


Tube Lines JNP
Lifts Refurbishment and Replacement
No. of Refurbishments and Replacements
16
14
12
10
8
6
4
2
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Delivered
CFO Bid
AAMP 0910


Tube Lines JNP
Step Free Access Lift Refurbishment and Replacement
Cumulative No.
40
35
30
25
20
15
10
5
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Delivered
CFO Bid
AAMP 0809


Tube Lines JNP
Step Free Access Lifts Refurbishment and Replacement
No. of Refurbishments and Replacements
40
35
30
25
20
15
10
5
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Delivered
CFO Bid
AAMP 0809

Environmental and safety performance

Environmental performance

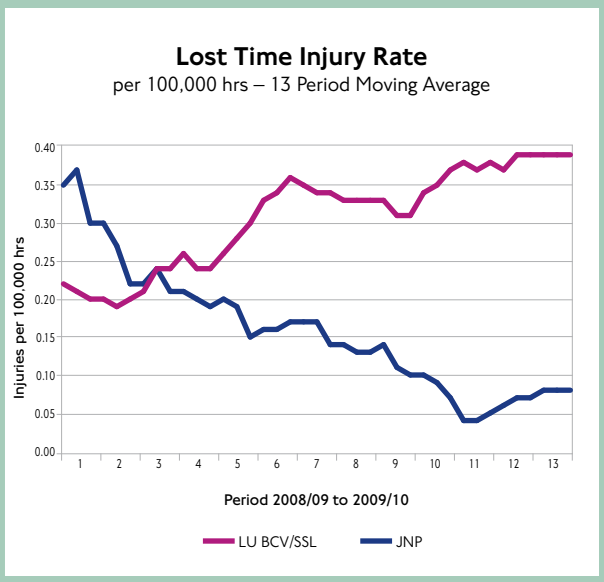
The table of measures shows environmental performance compared with the previous two years. A single figure for Commercial & Industrial waste is provided as Tube Lines manages the majority of Station and Depot waste both for themselves and for BCV/SSL. A single figure is also provided for Construction and Demolition waste as LU — through BCV/SSL — manages the majority of this waste for Tube Lines as well. It should also be noted that, the figure for Construction and Demolition waste also includes some non-PPP waste.

Safety performance

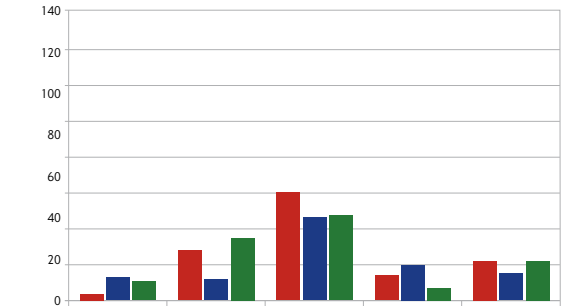
Safety is of paramount importance to LU, and the following safety measures reflect the key areas that contribute to the continued safe operation of the railway.

Environmental Performance

Measure	07/08 BCV/ SSL	07/08 TLL	08/09 BCV/ SSL	08/09 TLL	09/10 BCV/ SSL	09/10 TLL
Number of environmental incidents	1	0	0	0	0	0
Number of noise and vibration complaints	261	228	226	120	235	160
% Commercial and Industrial waste recycled	40%	40%	40%	40%	46%	46%
% Construction and Demolition waste recycled	71%	71%	70%	70%	79%	79%

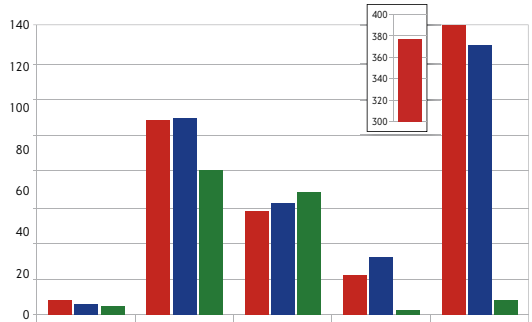


LU BCV
Safety Performance



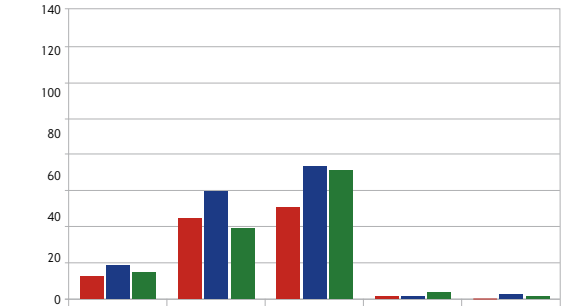
	Broken rails	Technical SPADs (caused by asset failure)	Confirmed fires	Parts detached from trains	Noteworthy door defect incidents
2007/08	3	24	52	12	19
2008/09	11	10	40	17	13
2009/10	9	30	41	6	19

LU SSL
Safety Performance



	Broken rails	Technical SPADs (caused by asset failure)	Confirmed fires	Parts detached from trains	Noteworthy door defect incidents
2007/08	7	94	50	19	378
2008/09	5	95	54	28	130
2009/10	4	70	59	2	7

Tube Lines JNP
Safety Performance



	Broken rails	Technical SPADs (caused by asset failure)	Confirmed fires	Parts detached from trains	Noteworthy door defect incidents
2007/08	11	39	44	1	0
2008/09	16	52	64	1	2
2009/10	13	34	62	3	1

7. Appendix

Note on future Performance Targets

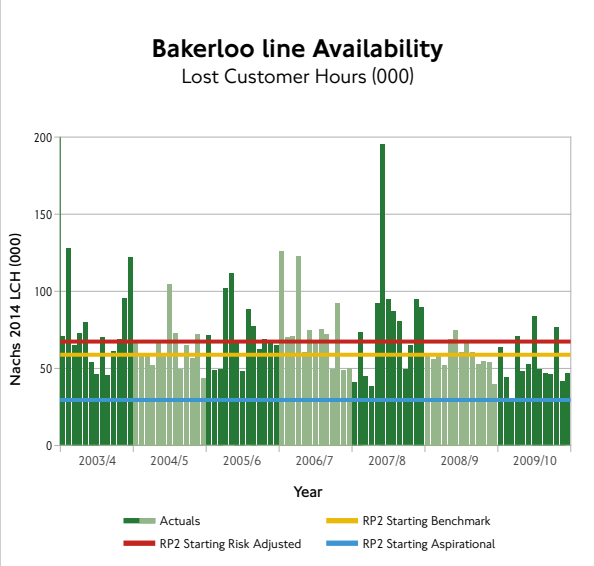
As part of the Periodic Review process, the value of disruption to customers has been revised and the NACHs (Nominally Accumulated Customer Hours) values with which this is measured have been revised to reflect the change in the value of disruption — e.g. current demand patterns, upgraded timetables expected in RP2. This change took effect from 27 June 2010. Performance targets are set in accordance with the NACHs values, so in future years the targets have been uplifted, with the contractual Benchmark representing the expected performance of an economic and efficient Infraco.

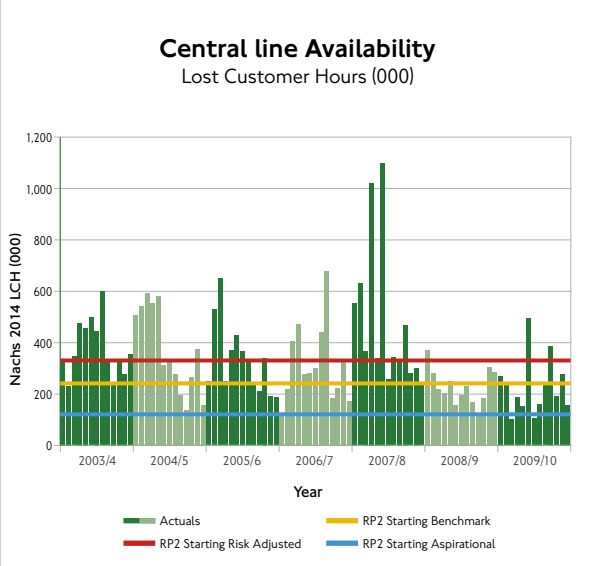
The graphs below restate actual performance per line to date in the updated NACHs values.

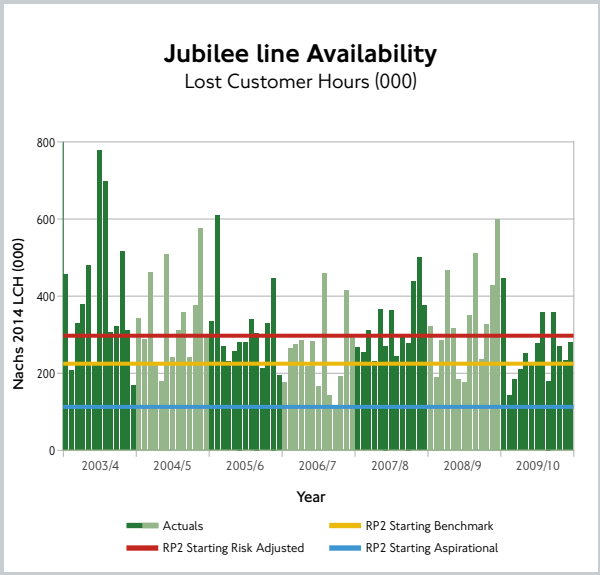
Whereas for Availability there was one "Benchmark" for each line in RP1, RP2 sees the introduction of two additional targets. Firstly, the Aspirational Benchmark, set to half the value of the line Benchmark, identifies the level of LCH under which there is an increased marginal rate of bonus, encouraging further improvement. The Risk Adjusted Benchmark takes into account the inherent volatility of the measure, and is the level at which worse performance will incur performance abatement.

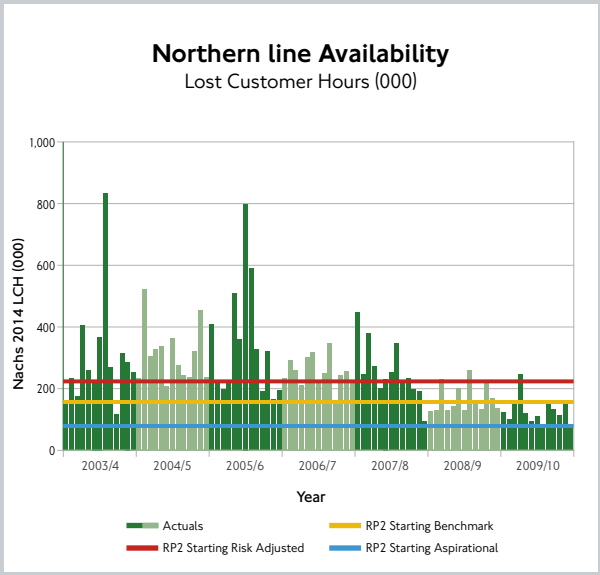
The Benchmark in RP2 represents expected performance, and LCH between Benchmark and Risk Adjusted Benchmark attracts performance bonuses.

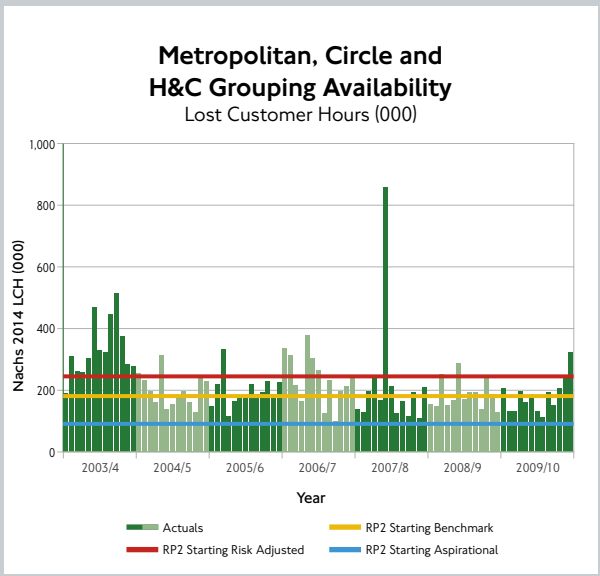
The graphs below further identify the starting (July 2010) levels of Aspirational Benchmark, Benchmark and Risk Adjusted Benchmark per line.

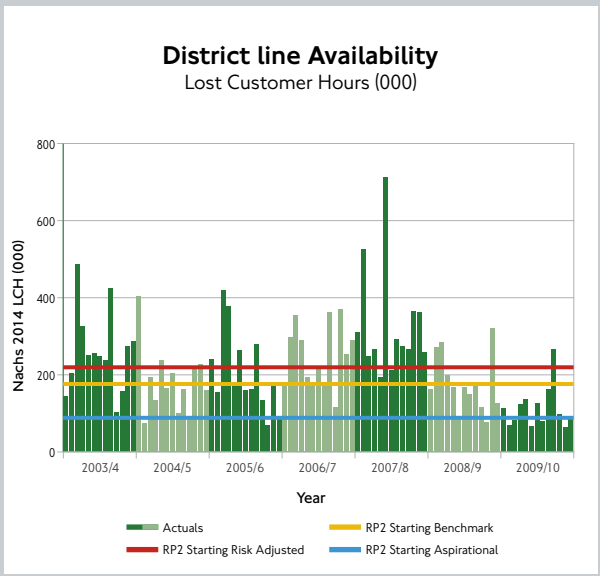


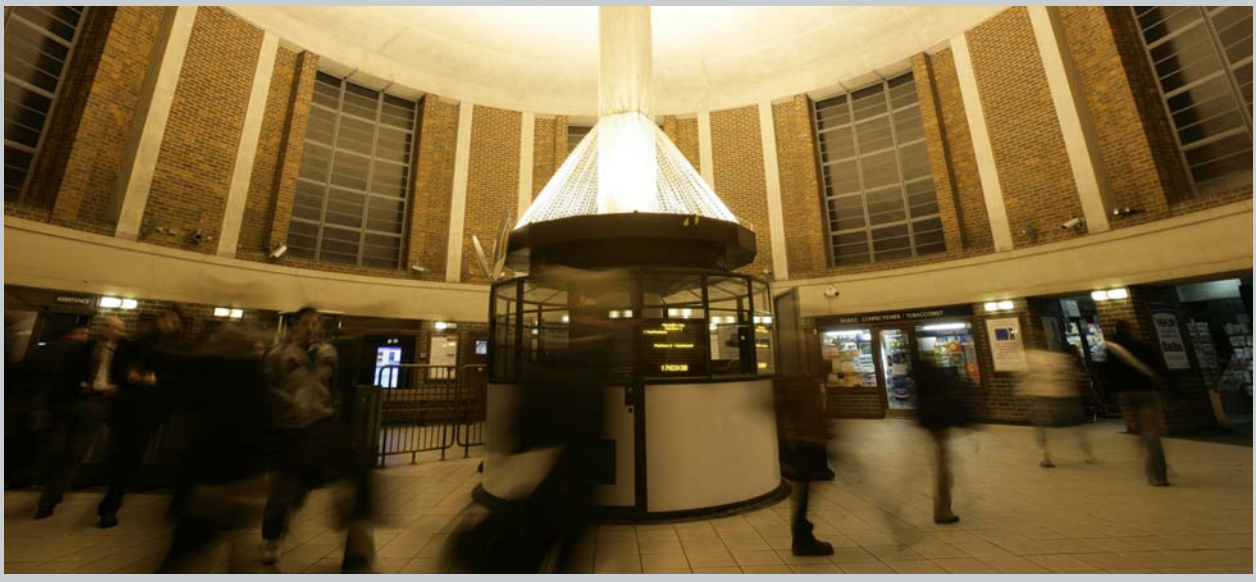


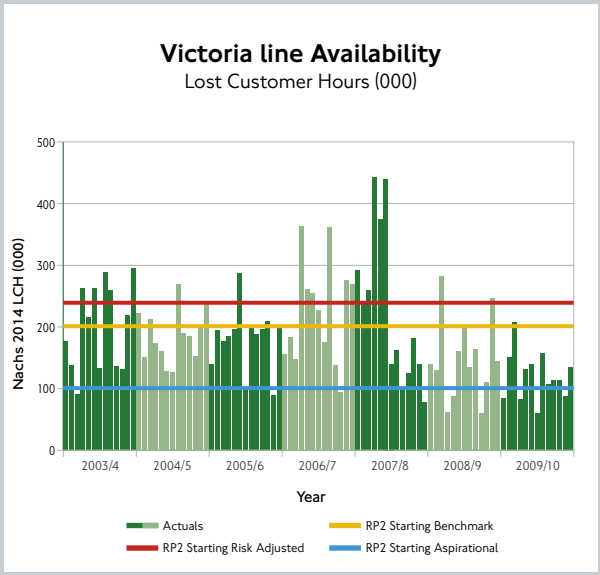

Jubilee line Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
800
600
400
200
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational


Northern line Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
1,000
800
600
400
200
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational

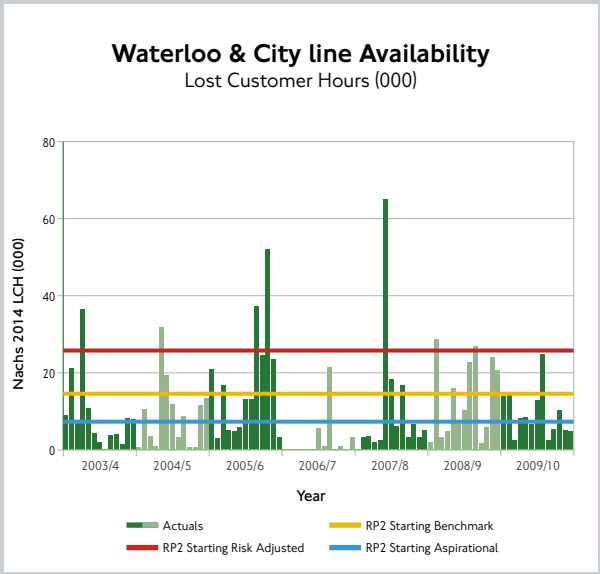

Metropolitan, Circle and
H&C Grouping Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
1,000
800
600
400
200
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational

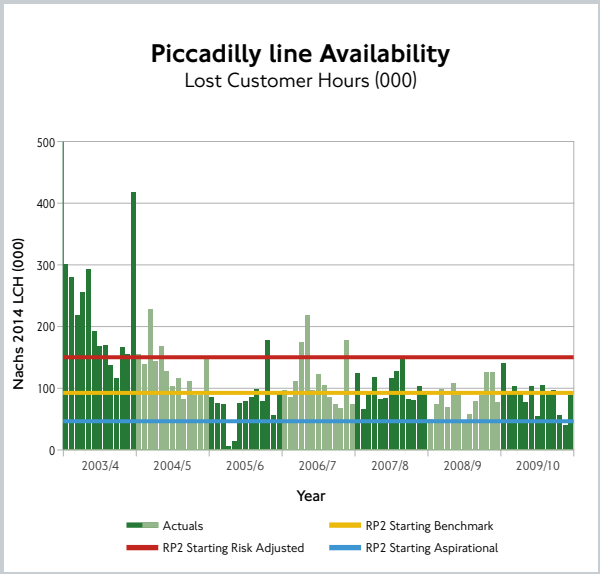

District line Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
800
600
400
200
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational




Victoria line Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
500
400
300
200
100
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational


UNDERGROUND


Waterloo & City line Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
80
60
40
20
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational


Piccadilly line Availability
Lost Customer Hours (000)
Nachs 2014 LCH (000)
500
400
300
200
100
0
2003/4
2004/5
2005/6
2006/7
2007/8
2008/9
2009/10
Year
Actuals
RP2 Starting Benchmark
RP2 Starting Risk Adjusted
RP2 Starting Aspirational


Westbound platform 1
Westbound platform 2