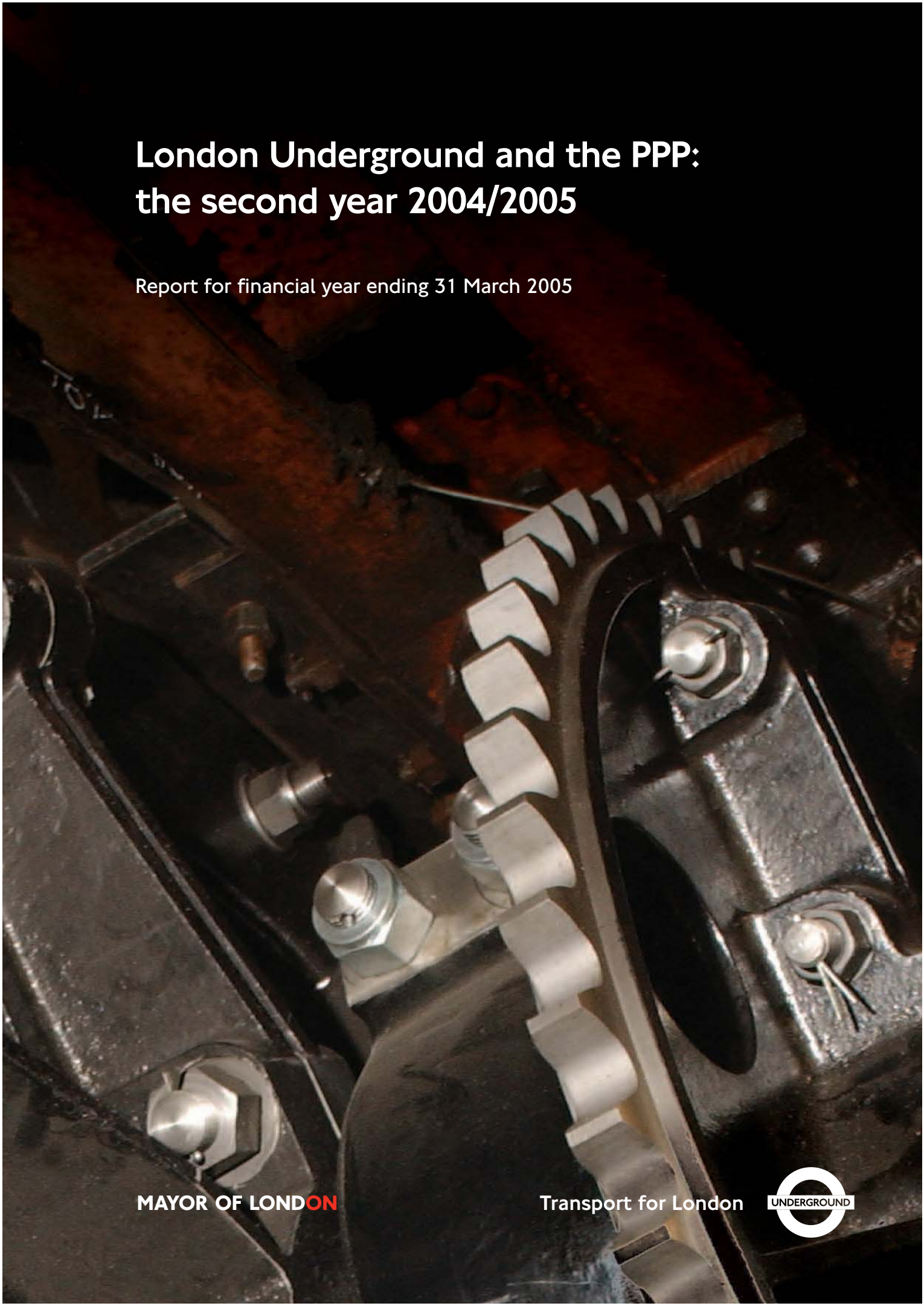
London Underground and the PPP: the second year 2004/2005

Report for financial year ending 31 March 2005



MAYOR OF LONDON

Transport for London

UNDERGROUND

Contents

1 Foreword

1. Foreword

Thursday 31 March 2005 marked the completion of the second year of the London Underground Public Private Partnership (PPP). It also marked the end of the first full year of London Underground under Transport for London's control.

In the past year London Underground (LU) has delivered improved performance, with higher levels of customer satisfaction and train service reliability recorded and a record breaking 976 million passenger journeys. More train kilometres were run and better information was provided to customers in this year than ever before. Passengers gave staff higher marks for caring and helpfulness, while staff attendance set new marks. Through the efforts of LU staff and the Infracos, particularly in the area of train reliability, this represents progress, but is still well short of the level of improvement that is required.

In last year's report, which covered the first year of the PPP, we concluded that it was too early to judge the performance of the PPP. At the end of the second year, we can begin to make judgements. This report shows improvements in many asset categories, but this could hardly be otherwise given the sums of money involved. There has been some progress in the first two years, but there are also some worrying trends and overall there is a shortfall compared with the expectations created by the private sector Infrastructure companies' bids. In short, performance is not good enough and is less than what was promised.

In some areas the Infrastructure companies (Infracos) have delivered improvements in asset reliability, but this is neither consistent across all asset types, nor is it the level of improvement that was promised for all asset types. There has been some progress in the delivery of renewals but again this is inconsistent and significant parts of the capital programme are late, particularly for Metronet.

Asset condition and programme information is finally being provided, but the quality of this information is inconsistent. The Infracos and their shareholders are earning significant sums through the PPP, but the volume of real work out on the railway is not consistent with the payments being made.

Assessments of progress in the early years are dependent on determining trends in the appropriate data. The PPP contracts credit or abate the Infracos according to their performance against benchmarks, which are one reference point. Tube Lines, in particular, has argued that its bid, accepted by Government, rather than the benchmark should determine its performance. In response, this report, in addition to assessing performance against the benchmarks, evaluates the Infracos against their own bids.[1] Interestingly this comparison is not generally favourable to the Infracos, showing performance well short of bid in some cases. This observation will come as no surprise to users of the Tube who, notwithstanding some improvement year on year and over LU performance prior to the PPP, have had to deal with continuing delays and interruptions to journeys on the system.

1 Bid projections for contractual performance measures used for comparison in this report are also reflected in Annex 5 to Schedule 1.9 of the Metronet PPP contracts. For Tube Lines, the CFO bid matrix was used.

The frustration associated with these performance levels caused me to call for increased spending on maintenance by the Infracos. Both Metronet and Tube Lines have expressed willingness in that regard and solicited ideas from LU management to complement their efforts. We have argued for increased expenditure on maintenance, particularly in the asset categories of track signal components. If the Infracos follow through with a sustained increase in resources directed to basic and heavy maintenance, LU's performance can improve at a rate closer to our expectations in the coming years. This is essential because the performance benefits of renewals and upgrades remain many years away.

Where renewal work is being delivered much of it is currently late. As this report highlights, Metronet's District line rolling stock (D-stock) refurbishment programme is delayed by at least one year[2]; its station renewal programme is late and its track renewal and reconditioning programme is behind schedule. Although Metronet has met early milestones in its Victoria line upgrade project, it strains credulity to credit progress on such a complex project when, currently, much simpler renewal work is consistently late. Tube Lines has been more successful in delivering projects, with track renewal work closer to the original plan and seven of its first nine station projects delivered on time. Tube Lines has also demonstrated tangible progress on its Jubilee and Northern upgrades with its Highgate test facility and the Jubilee 7 car work to date.

It is essential that early renewals are delivered on time and to the expected cost and quality if we are to meet the much greater volume of works to come in the future. We cannot afford to fall behind the curve as the work to be done starts to rise steeply.

The concerns we expressed in last year's report about the Infracos' planning and project management abilities appear to have been well-founded. Overruns of engineering work have increased 35% on the first year and now average greater than one a week; many of these were caused by poor project planning and execution. With an increasing work rate ahead of us it is essential that these issues are tackled now. The incentives in the PPP contract have proved insufficient to reduce engineering overruns, which have incited more negative reaction to PPP performance than any other incidents.

Two Corrective Action Notices were issued to Metronet for performance in the last year.[3] One was issued to Metronet BCV for failure in its track maintenance processes which contributed in a derailment at White City. The other was issued to Metronet SSL in relation to its performance of track renewal works, which displayed poor management and raised safety concerns (and consequently resulted in engineering-overruns).

The intention of the PPP was that the Infracos would develop techniques for economic and efficient asset management. Without proper programme and asset condition information we cannot be assured that the Infracos are doing this. Without proper cost information we cannot be assured that the financial flows reflect actual investment being made. The base cost of PPP increases by 18% in year three whether or not any improvement is seen. As a result, LU will appear less efficient in the coming year before it has turned a wheel.

---

2 Despite this slippage, Metronet still believe they can complete the D-Stock refurbishment programme by the contract date. Even if Metronet's prediction proves accurate, this programme is an example of payments being made well ahead of the work.

3 A Corrective Action Notice (CAN) is a contractual measure where LU requires the Infraco to undertake specific remedial activities within a stipulated timescale.

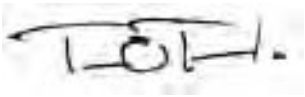
The structure of the Infracos also continues to cause us concern. Metronet is owned by companies in its supply chain; Tube Lines manages third party contractors, but pays its shareholders to provide the many of its project managers. Much of the work that has been achieved appears to be costing more than anticipated in the bids, particularly for Metronet, and there is evidence that some payments to contractors are running ahead of performance. This may reduce leverage for both Infracos and LU.

In the coming year both Infracos have critical challenges. Tube Lines must restore the performance of the Northern line, now our worst performing line, to at least the standard seen on the Jubilee and Piccadilly lines. Metronet must prove that its corporate structure is capable of recovering from the delays to its renewal programmes and delivering the balance of them to the original schedule.

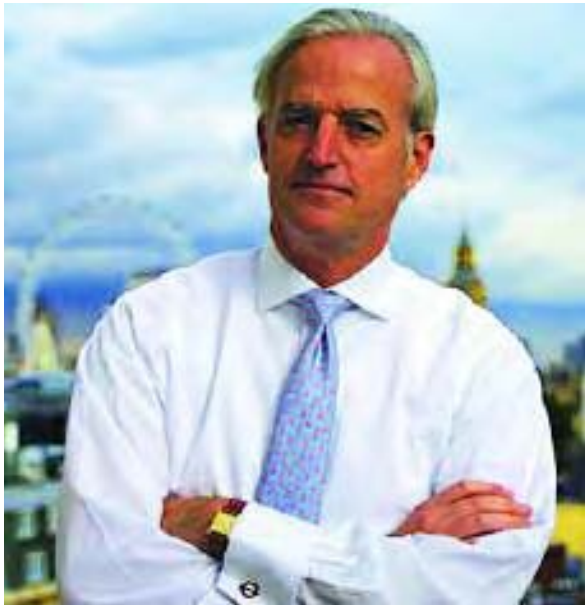
For our part, LU must do all we can to enable the Infracos to meet their promises whilst improving our performance in the face of more severe disruption resulting from increased works.

It is essential that we drive for more comprehensive and effective maintenance now to provide the reliable service that will need to be in place as the 'bow wave' of upgrade work hits us towards the end of the decade. We need assets that are capable of supporting our performance. It is equally important that the promise of the renewal programme is converted into delivery to programme and to cost.

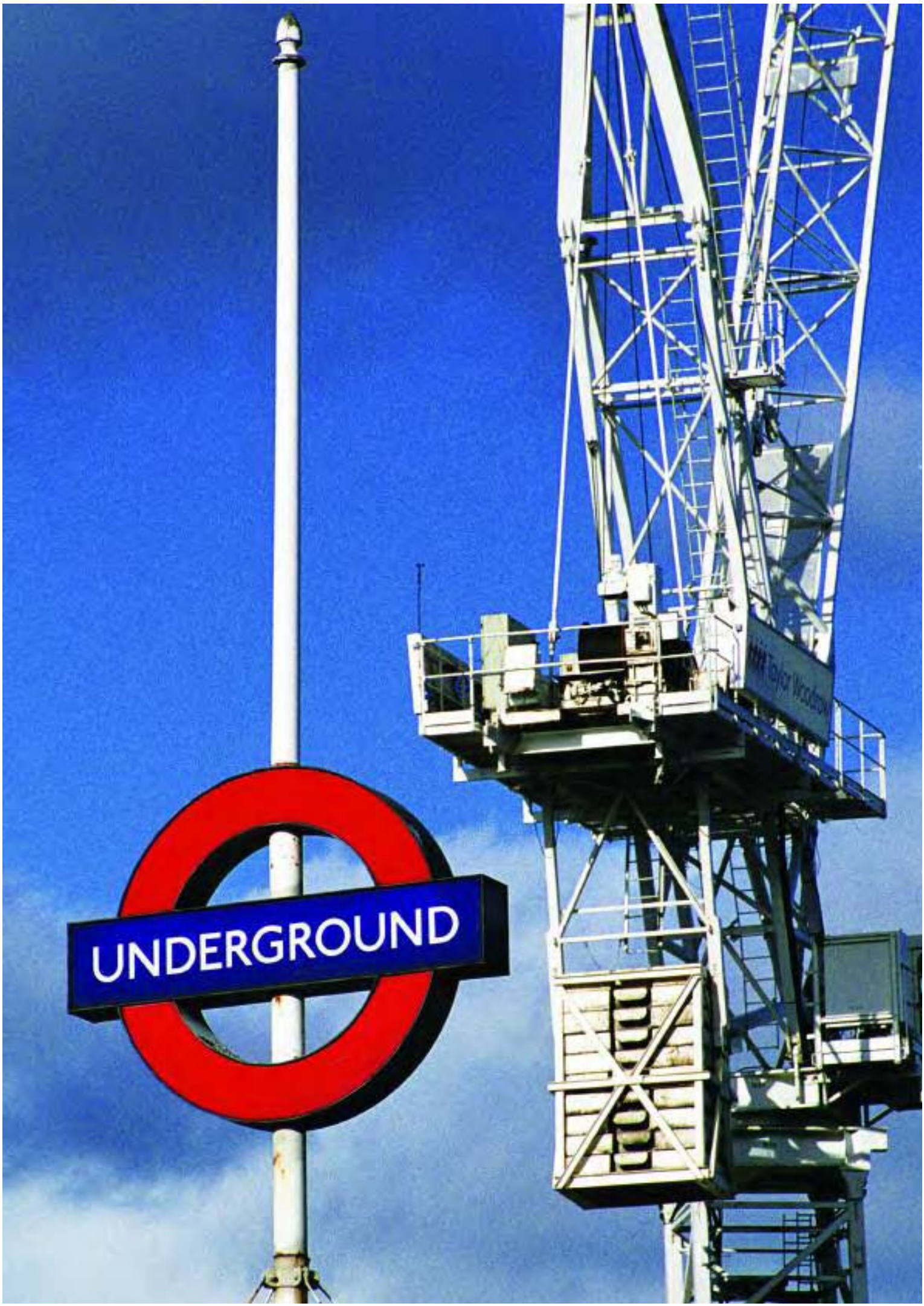
We are past 'early days'. It is time for delivery.



Tim O'Toole
Managing Director
London Underground Ltd
July 2005



2 Background


UNDERGROUND

2. Background

Last year Transport for London (TfL) published an assessment of the first year of the London Underground Public-Private Partnership (PPP) contracts. In short we concluded that it was too early to come to firm conclusions on the performance of PPP, but that we had grave concerns particularly about the Infracos' abilities to plan and manage the enormous volume of work the contracts demand over the next 30 years.

This report sets out our assessment of the PPP contracts at the end of the second year.

The JNP contract was placed with the Tube Lines consortium on 31 December 2002, while the BCV and SSL contracts were placed with the Metronet consortium on 4 April 2003.[4] TfL assumed control of the operating company, London Underground Limited, on 15 July 2003. The year 2004/05 therefore represents the first full year of London Underground under TfL's control.

The PPP contracts are largely output specified – defining levels of performance with the expectation that the private sector Infracos will optimise against cost and risk to deliver the maintenance and investment necessary to achieve (and exceed) performance targets. The performance specification provides financial incentives to maintain, renew and enhance the infrastructure while leaving the technical solution to the Infracos. The four weekly payments to the Infracos are adjusted according to the level of performance in comparison with these financial incentives, with bonuses awarded or abatements applied.

This applies particularly in terms of taking a whole-life approach to asset management not possible under LU's previous financial arrangements. Consequently the contracts are of 30 years duration, with periodic review periods every 7.5 years.

The Government put the three PPP contracts out to competitive tender with the expectation that the bidders would demonstrate a capability to deliver and exceed the contract benchmarks, and deliver significant benefits to LU's customers.

4 The JNP contract covers the Jubilee, Northern and Piccadilly lines; the BCV contract covers the Bakerloo, Central, Victoria, Waterloo & City lines and the SSL contract covers the sub-surface lines (Circle, District, Metropolitan, Hammersmith & City and East London).

It is the PPP contracts, rather than the bids, that determine the level of payment due to the Infracos over the first 7.5 years. However, the bids indicated the levels of asset performance expected and works to deliver improved performance in the first 7.5 years. This was used to justify the price levels for those 7.5 years. We are very concerned to ensure that these works assumed in the bid are not simply pushed into subsequent contract periods and used to justify increases in subsequent contract period price levels.

The last year has seen a far greater degree of organisational change for the Infracos than was anticipated.

The structure of Tube Lines has changed considerably since contract signature. While Bechtel remains a core partner, the interests of Amey and Jarvis have transferred to the Spanish company Ferrovial SA. Amey's interest was transferred through a corporate takeover in June 2003, not long after contract signature, and the Jarvis interest was transferred as part of a financial restructuring in January 2005.

By contrast the Metronet consortium structure has remained stable, but the company has seen further change in senior management, with the recent announcement of Andrew Lezala as its third chief executive in two years and Keith Clarke (Chief Executive of Atkins) as its new non-executive chairman.[5] The downgrading of consortium member Bombardier's credit rating to 'junk bond' status is a cause for concern though it has not yet directly affected the PPP.

The PPP remains a subject of considerable public interest and scrutiny. In the last year the National Audit Office published two reports raising questions about whether the deals offer value for money and will deliver improvements to customers. In its response to the NAO reports the Public Accounts Committee was critical of the PPP structure and the Transport Select Committee endorsed the need for further investment in the Underground but questioned the effectiveness of the PPP as the mechanism for this investment. Such concerns echo TfL's own original assessments of PPP. Despite TfL's on-going doubts about PPP, it is committed to working with the PPP arrangement as far as possible to ensure that the investment in the Tube is used to deliver real improvements to customer service. In that regard, the day-to-day working relationships between LU and the Infracos have been marked by a co-operative approach, and basic contract mechanisms, such as the fault attribution process, have worked without significant dispute.

Without doubt the PPP will continue to be a subject of public interest. Against this backdrop, LU presents this report of our assessment of the PPP in 2004/05. The following chapters discuss how the PPPs are performing in contractual terms, underlying asset performance, progress on renewals and upgrades (which is becoming increasingly important), the Infracos' financial performance, an assessment of the Infracos' efforts to introduce whole life asset management and, importantly, safety performance. The final chapter sets the PPP in the context of LU's overall performance.

5 Jim Cohen (MD Balfour Beatty Rail) was appointed with Keith Clarke in April as interim Chief Executive pending Andrew Lezala taking post in June 2005. The Metronet consortium members remain Balfour Beatty, Bombardier, RWE Thames Water, WS Atkins and EDF Energy (previously SEEBOARD).

3 PPP contractual performance

3. PPP contractual performance

The PPP contracts were deliberately written to specify performance outputs rather than technical inputs, with the intention that investment decisions should be an Infraco risk. Consequently the contracts include an extensive performance regime with bonuses and abatements that provide financial incentives to perform. The principal contractual measures are:

- Availability: a measure of day-to-day reliability based on whether assets are available for service
- Capability: a measure of what the assets are capable of delivering in terms of capacity and reduced customer journey time
- Ambience: a measure of the quality of the travelling environment

Each of these measures has a contractual benchmark level, with bonuses being received for better performance and financial penalties (abatements) charged if performance is worse than benchmark. Abatements are charged at a higher rate per unit of measurement point than the bonus rate. An 'unacceptable' level is also defined and this attracts an even higher abatement per unit. The expectation implicit in PPP is that over time performance will improve and earn the Infracos bonuses (and certainly this assumption is evident in the bids submitted by Metronet and Tube Lines to win the contracts).

While availability, capability and ambience are the three main measures there are also other elements of the performance regime, such as service points. Service points are levied for failure to meet certain obligations such as avoiding engineering overruns.

This chapter reviews the second year of the PPP against these contract measures.

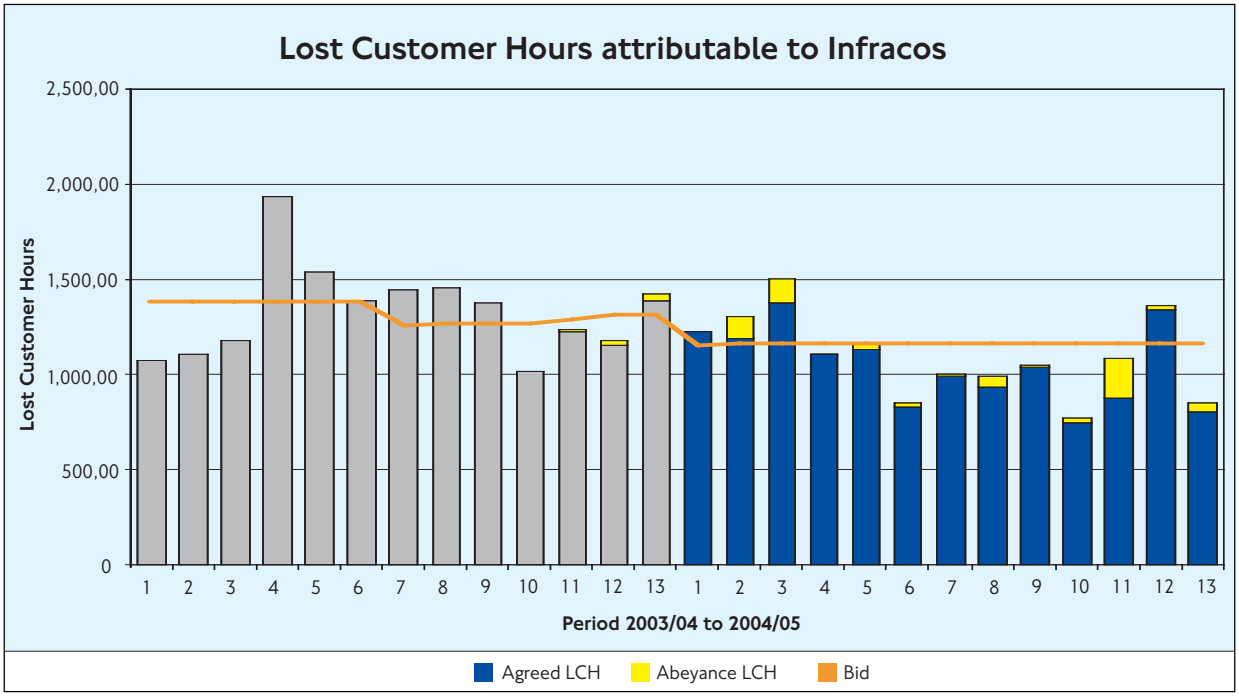
3.1 Availability

Availability is essentially a reliability measure reflecting whether assets 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.

This is expressed as 'lost customer hours' (LCH). For example, a two minute delay at Oxford Circus in the morning peak costs significantly more lost customer hours than a two minute delay on a Sunday evening in the suburbs. At signature the contract benchmarks were set at approximately 5% worse than historic LU performance for the first year of the contract, becoming more challenging in subsequent years on certain lines.[6]

6 Lines where the availability benchmark becomes more challenging were the District, Metropolitan, H&C and Circle, as well as the Northern and Piccadilly lines.

Overall availability performance for the second year of PPP was better than the first year, and the trend generally shows improvement. This mainly derives from a reduction in lost customer hours caused by rolling stock and track faults. The improving trend is evident across all lines except the Northern line.[7]



Metronet BCV

Generally, Metronet BCV's performance was on or around the benchmark level. The Bakerloo line shows the best result of the four lines overall, with agreed lost customer hours being 34% better than benchmark and 20% better than year one. The improvement derives from a 20% reduction in track and civils failures and a 26% reduction in rolling stock failures, though the latter still makes up around half the total lost customer hours. There was, however, a 19% increase in lost customer hours arising from signal failures.

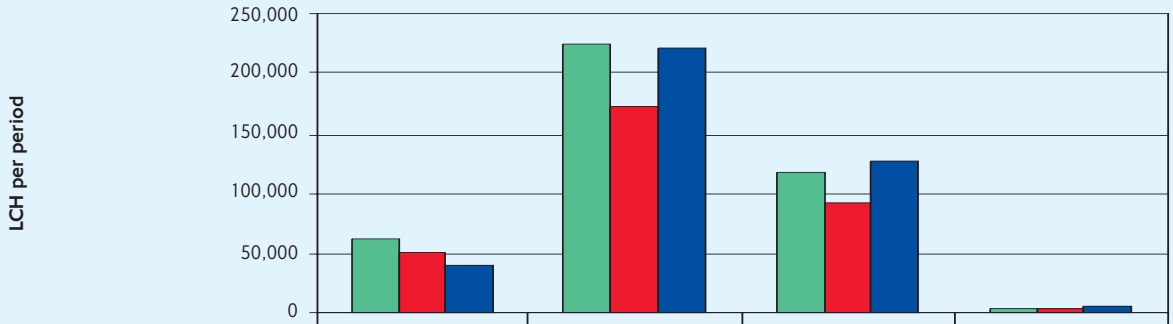
Unfortunately, the other BCV lines do not tell the same story. The Central line started the year badly, earning abatements in five of the first six periods of the year mainly due to track & civils and signalling problems (which over the year as a whole were up by 89% and 103% respectively). The second half year two showed some improvement and, overall, the Central line finished the year within 2% of benchmark and with agreed lost customer hours around 15% down on the previous year.

7 Note that graphs included in this section may refer to lost customer hours 'in abeyance'. These arise from incidents where the responsible party is still being determined. The attribution process means it is normal to see a larger number of 'abeyance LCH' in the most recent three 4-week periods.

Availability on the Victoria line was particularly disappointing. Whilst the line recorded a 10% improvement in agreed lost customer hours on 2003/04 it still finished the year 4% worse than benchmark.[8] Rolling stock and signalling improvements were undermined by a 38% increase in lost customer hours resulting from stations (including lift and escalator) incidents. The picture for the Waterloo & City line is similar – an improvement on the previous year (28%) but still falling some way short of the benchmark as a result of signal failures.

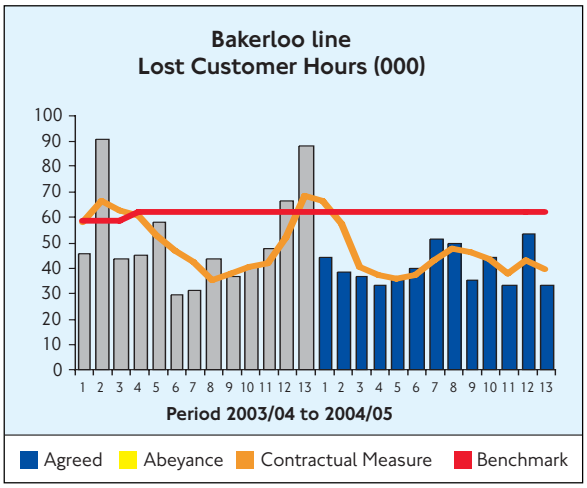
Overall then, all the BCV lines showed an improvement on last year and in aggregate Metronet BCV finished the year around the benchmark level. However, comparing actual performance to what Metronet promised in its bid is more revealing. On the Bakerloo line Metronet achieved a result 20% better than bid. On the other lines, however, achieved performance was around 30% worse than the expectation in the bid. This raises concerns about whether Metronet is addressing asset performance issues as successfully as it hoped.

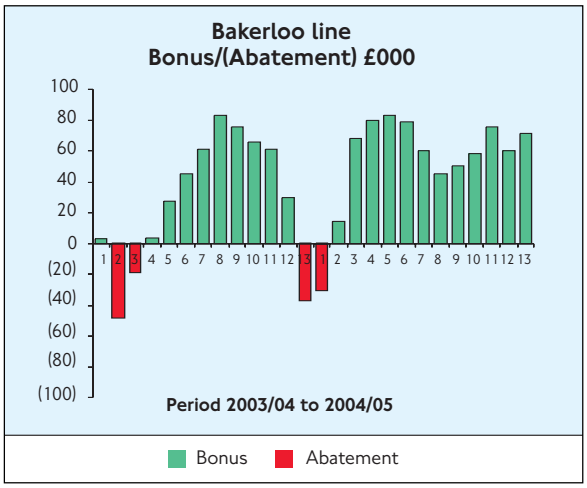
Metronet BCV - Availability
Average Lost Customer Hours (LCH) per period 2004/05

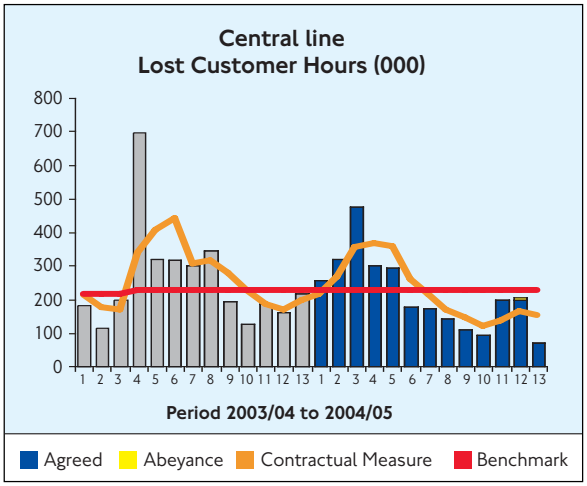


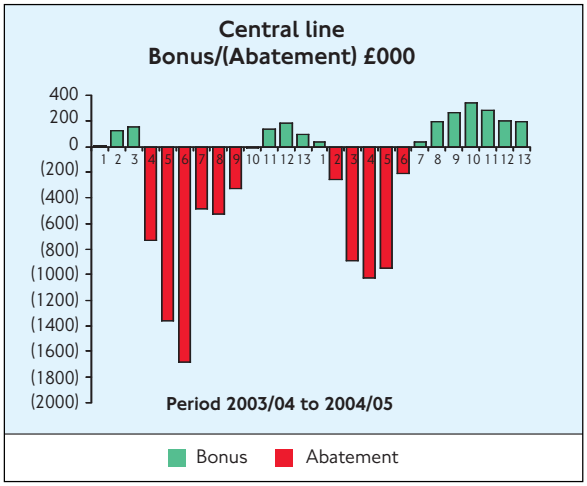
	Bakerloo	Central	Victoria	Waterloo & City
Contract Benchmark	61,600	224,700	117,600	4,800
Bid projection	51,150	171,878	93,833	4,232
Achieved (including abeyance)	40,904	219,895	127,814	5,400

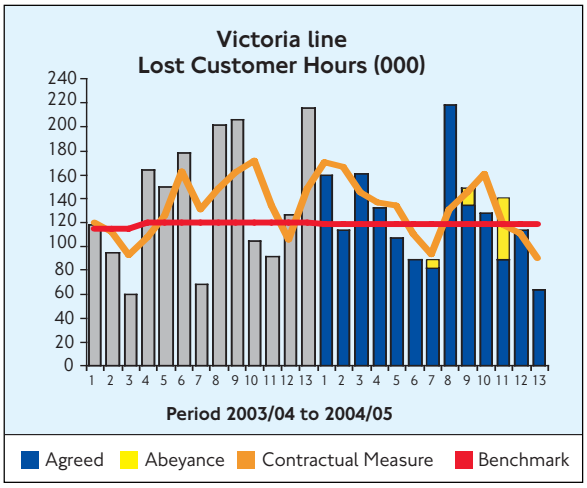
8 Approximately 60,000 lost customer hours on the Victoria line remains in abeyance.

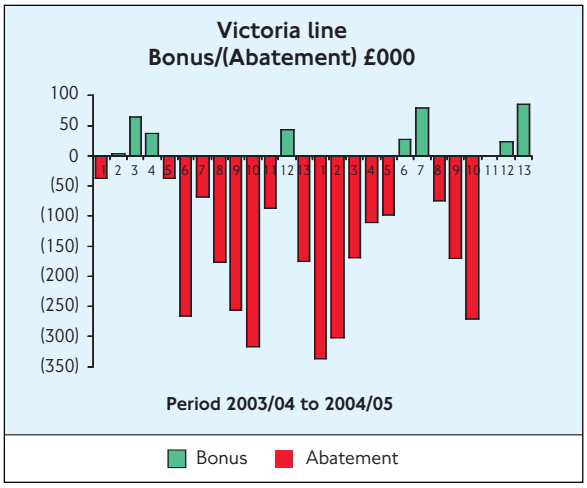

Bakerloo line
Lost Customer Hours (000)
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark

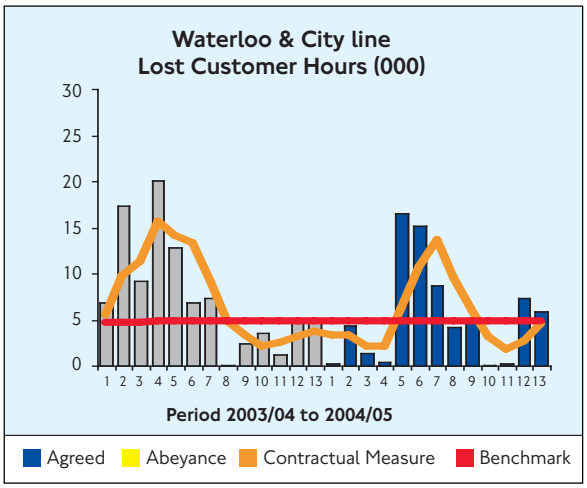

Bakerloo line
Bonus/(Abatement) £000
Period 2003/04 to 2004/05
Bonus
Abatement

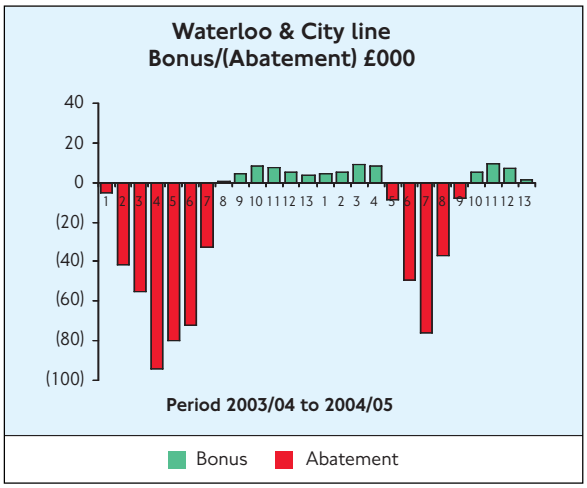

Central line
Lost Customer Hours (000)
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark


Central line
Bonus/(Abatement) £000
Period 2003/04 to 2004/05
Bonus
Abatement


Victoria line
Lost Customer Hours (000)
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark


Victoria line
Bonus/(Abatement) £000
Period 2003/04 to 2004/05
Bonus
Abatement


Waterloo & City line
Lost Customer Hours (000)
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark


Waterloo & City line
Bonus/(Abatement) £000
Period 2003/04 to 2004/05
Bonus
Abatement

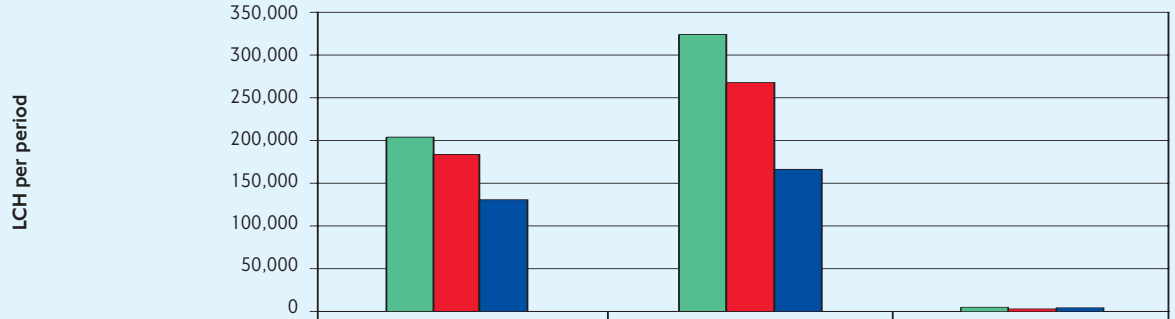
Metronet SSL

The other Metronet Infraco, SSL, achieved a second year performance that not only beat the benchmark, but also beat the expectations set out in the bid. The District, Metropolitan, Hammersmith & City and Circle lines all achieved an improvement in availability on last year of around 35-40%. This meant the District line finished year two some 28% better than bid, and the Metropolitan 40% better than bid with total agreed lost customer hours representing only half the benchmark.[9]

Lost customer hours due to rolling stock, track and signal failures, which account for the majority of the total, all showed significant reductions. However, on the District line, lifts, escalators and other station assets showed worse performance than year one.

The East London line was the only Metronet SSL line to attract availability abatements last year. Despite achieving the benchmark, recorded overall performance was 3% worse than year one and 4% behind the expectation in the Metronet bid.[10] This was mainly the a result of a 76% increase in lost customer hours due to track and civils faults and a 21% increase related to rolling stock, the latter accounting for well over half of all lost customer hours on the line.

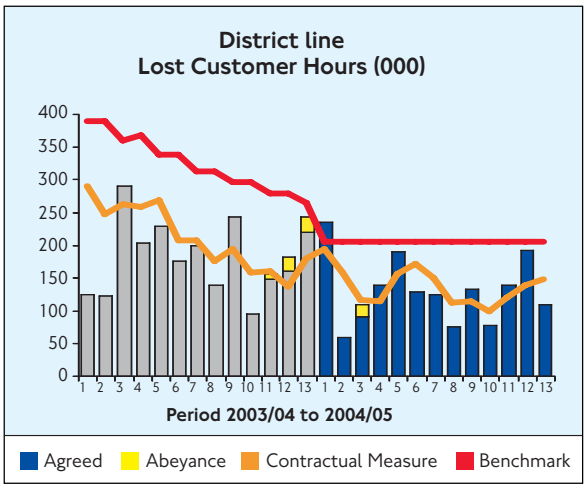
Metronet SSL - Availability
Average Lost Customer Hours (LCH) per period 2004/05

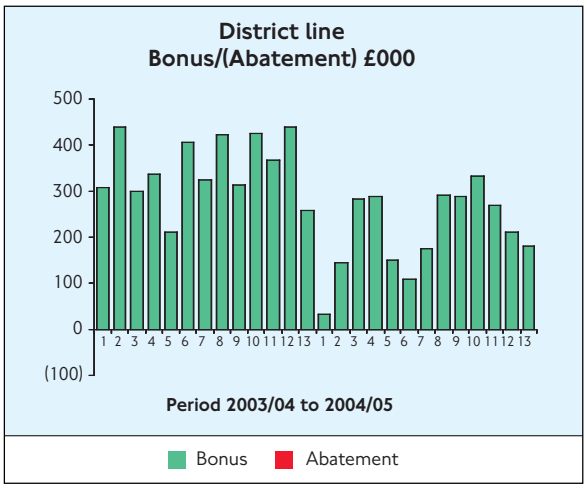


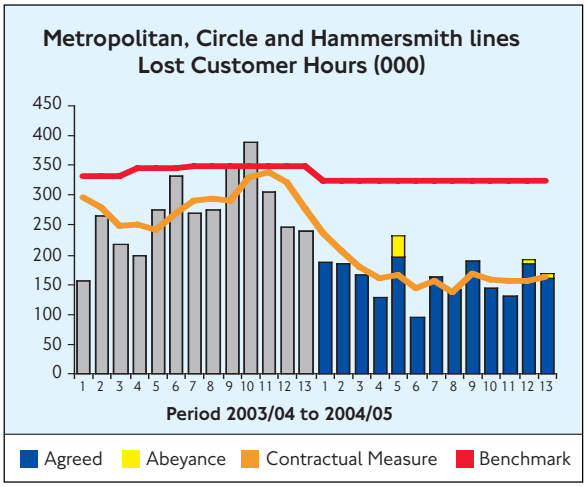
	District	Met, Cir and C&H	East London
Contract Benchmark	203,200	321,100	2,900
Bid projection	182,163	265,361	2,746
Achieved (including abeyance)	132,448	162,352	2,849

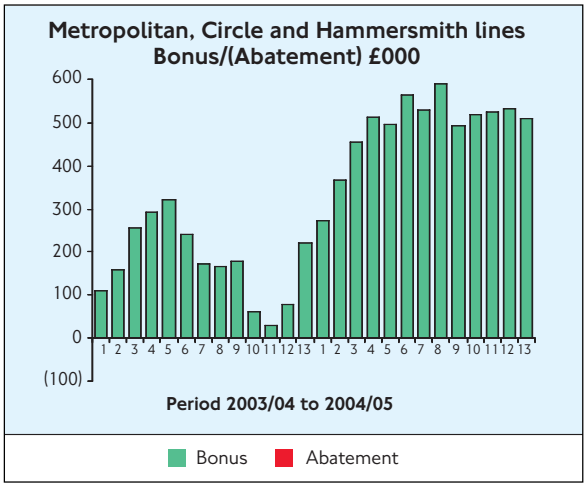
9 A further 53,000 and 43,000 lost customer hours remain in abeyance on the Metropolitan and District lines respectively.

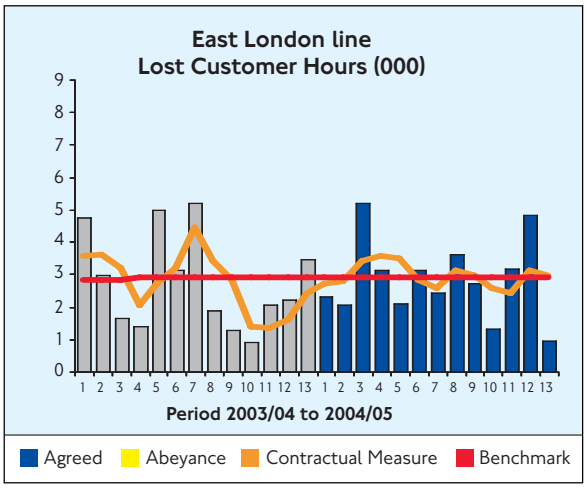
10 The relative size of the East London line means that the effect on MRSSL overall is not significant.

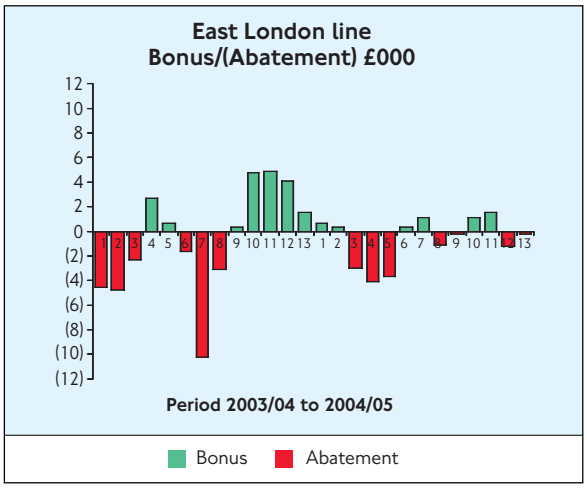

District line
Lost Customer Hours (000)
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark


District line
Bonus/(Abatement) £000
500
400
300
200
100
0
(100)
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Bonus
Abatement


Metropolitan, Circle and Hammersmith lines
Lost Customer Hours (000)
450
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark


Metropolitan, Circle and Hammersmith lines
Bonus/(Abatement) £000
600
500
400
300
200
100
0
(100)
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Bonus
Abatement


East London line
Lost Customer Hours (000)
9
8
7
6
5
4
3
2
1
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Agreed
Abeyance
Contractual Measure
Benchmark


East London line
Bonus/(Abatement) £000
12
10
8
6
4
2
0
(2)
(4)
(6)
(8)
(10)
(12)
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Bonus
Abatement

Tube Lines

In the first year of the PPP, Tube Lines attracted heavy abatements for poor availability across all three of its lines. In the second year, performance has been improved on the Jubilee and Piccadilly lines but the Northern line remains problematic, attracting abatements in every 4-week period of 2004/05. Although agreed lost customer hours on the Northern line were 10% lower than the previous year, they were 67% higher than the benchmark level and 74% worse than the Tube Lines bid.[11] Excluding the Camden Town derailment in October 2003, lost customer hours performance for the current year was 26% worse than the previous year.

A combination of factors appears to be behind the Northern line's poor performance. The line suffered from significant lost customer hours due to signalling failures as well as disruptions arising from rolling stock, lift and escalator problems. The Northern line has not achieved the availability benchmark since June 2003 and radical improvement is now essential. With the new signalling system for the Northern line not due for another four to six years, the current system needs to be maintained and available for some time.

Jubilee line year end performance for agreed lost customer hours was marginally better than benchmark and on target in relation to the bid.[12] While some asset categories, notably signals, showed improvement, stations (including lift and escalators) problems brought performance down.

The Piccadilly line suffered serious performance problems with rolling stock and signalling in the first year of the contract. Tube Lines' wheelset modification programme appears to have successfully addressed these issues, with lost customer hours due to stock failures halved compared to the first year.[13] The improved performance of the Piccadilly line is a result of substantial additional investment and improved management. This improved performance is a notable accomplishment for Tube Lines last year and illustrates the improvement that can be realised through aggressive maintenance programs.

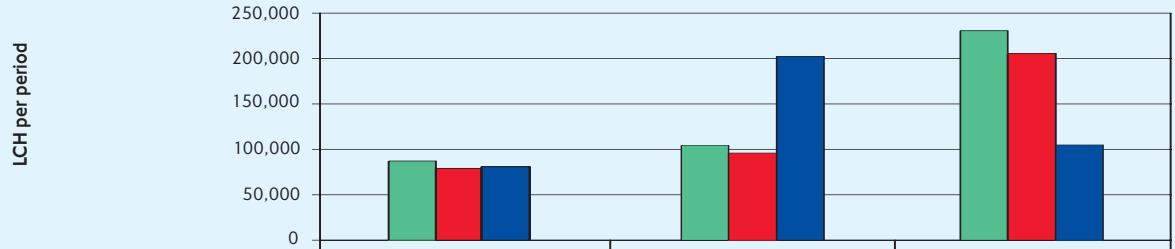
Overall the picture for availability is mixed. There have been some obvious improvements in performance, particularly on the sub-surface and Piccadilly lines, but also areas where availability is actually worse than in the first year. Looking ahead to the third year of PPP shows that Metronet SSL is already ahead of the expectation set out in its bid. However, Metronet BCV and Tube Lines have a lot to do to achieve the availability improvements promised. They will have to improve on year two performance by 31% and 17%, respectively, in order to be back on track with their bids.

11 A further 389,000 lost customer hours remain in abeyance which represents 34% of the total agreed lost customer hours on the Northern line.

12 A further 45,000 lost customer hours remain in abeyance on the Jubilee line.

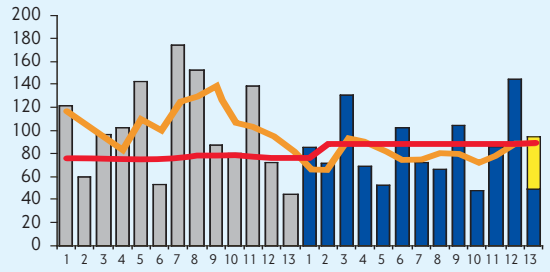
13 A further 134,000 lost customer hours remain in abeyance which represents 11% of the total agreed lost customer hours on the Piccadilly line.

Tube Lines (JNP) – Availability
Average Lost Customer Hours (LCH) per period 2004/05



	Jubilee	Northern	Piccadilly
Contract Benchmark	87,461	103,631	226,896
Bid projection (adjusted)	81,423	99,910	205,195
Achieved (including abeyance)	86,601	203,292	108,163

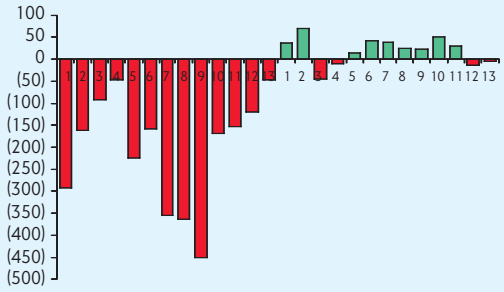
Jubilee line
Lost Customer Hours (000)



Period 2003/04 to 2004/05

Agreed | Abeyance | Contractual Measure | Benchmark

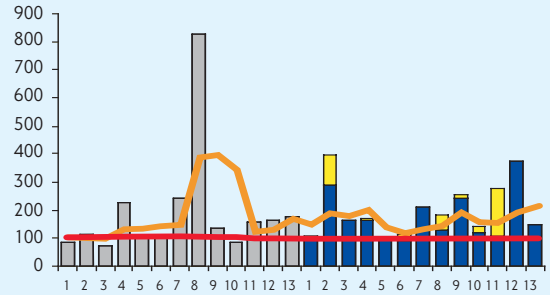
Jubilee line
Bonus/(Abatement) £000



Period 2003/04 to 2004/05

Bonus | Abatement

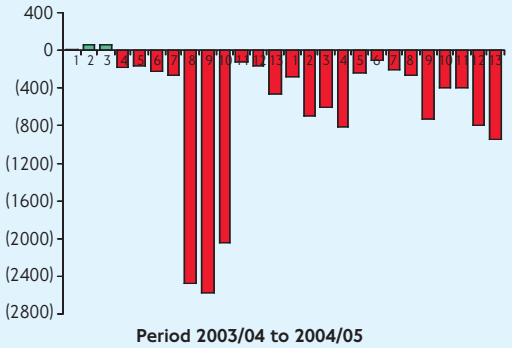
Northern line
Lost Customer Hours (000)



Period 2003/04 to 2004/05

Agreed | Abeyance | Contractual Measure | Benchmark

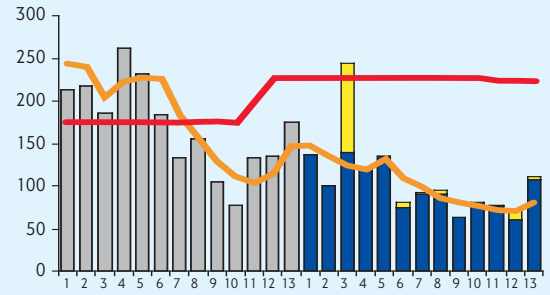
Northern line
Bonus/(Abatement) £000



Period 2003/04 to 2004/05

Bonus | Abatement

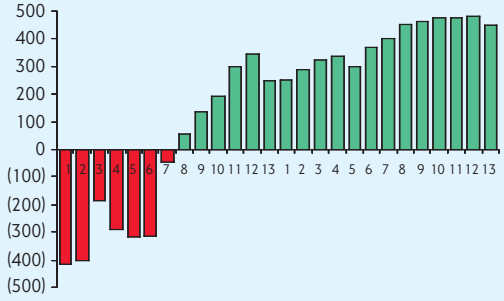
Piccadilly line
Lost Customer Hours (000)



Period 2003/04 to 2004/05

Agreed | Abeyance | Contractual Measure | Benchmark

Piccadilly line
Bonus/(Abatement) £000



Period 2003/04 to 2004/05

Bonus | Abatement

3.2 Capability

Whereas availability is about day-to-day performance, capability is a longer-term measure of the potential capacity of the assets to reduce the journey time experienced by the customer. Improved capability can be achieved through having more trains, or faster trains (through train or signalling systems), or trains with more capacity, or some combination of these.

The PPP contracts set out requirements for significant improvements in capability. It is for the Infracos to decide on the combination of measures to achieve the targets. The long lead times involved in procuring these line upgrades with new signalling and/or rolling stock mean that most of the upgrades are not due until the second 7.5 year period of the contract.

In the first contract period, it is possible to achieve small capability improvements on most lines, for example by increasing the effective fleet size available for service (through more efficient maintenance and management of spare trains) or by addressing the causes of certain speed restrictions that act as constraints on line capacity, and the Infracos have made some progress in that regard.

Metronet BCV was able to provide an increased number of trains for service on both the Central and Victoria lines. On the Central line, however, this improvement has been partially offset by degraded capability following a train derailment at White City in May 2004 and the loss of operational points in that area. Metronet SSL has delivered capability improvements through making available additional trains, two for the peak service and one for the off peak for the Metropolitan line. Tube Lines' bid did not predict any improvement in the second year. In fact, however, Tube Lines was able to deliver small improvements on both the Northern and Piccadilly lines through the removal of speed restrictions.

Both Metronet BCV and SSL have promised improvements in the third year of the contract. The Central and Victoria lines will be particularly important as both have a contractual capability improvement target due in 2006, and the Waterloo & City upgrade is due in 2007. Apart from delivery of a 7 car on each Jubilee line train being delivered on programme in 2006 (a requirement specified by LU), Tube Lines is not predicting any further capability improvements before the Jubilee line upgrade in 2009.

3.3 Ambience

The Ambience measure reflects the value that our customers place on their travel environment by measuring the quality of the travelling environment on trains and in stations. A quarterly Mystery Shopping Survey (MSS) conducted by an independent accredited survey organisation assesses various aspects of the service, 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 condition of toilets and waiting rooms.

The benchmarks were set at levels better than historic LU performance and apply at Infraco rather than line level. The financial penalty per point below the benchmark is greater than the bonus per point above the benchmark.

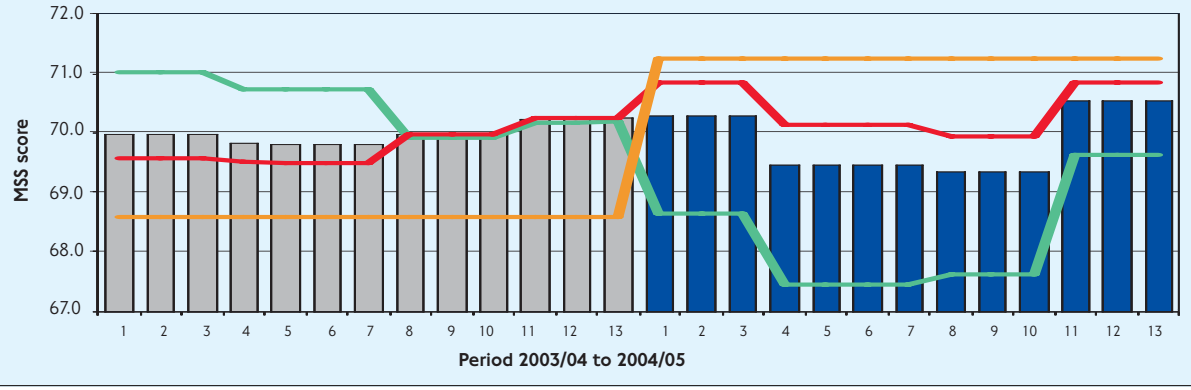
Ambience was an area of significant improvement in the first year of PPP. This improvement was sustained for Metronet SSL. However, ambience performance was largely unchanged for Tube Lines and deteriorated for Metronet BCV in the second year. Metronet BCV and Metronet SSL both earned bonus payments on ambience for the year, with performance better than benchmark. However, actual performance was still well short of what was promised in the Metronet bids.

Metronet SSL ambience scores improved from the previous year mainly as a result of the considerable achievement of removing non-scratch graffiti from the train fleet, which saw graffiti scores increase from an average of 32 to 85 points. Unfortunately, this success was not repeated in other categories and the décor of stations particularly brought down the overall Metronet SSL score.

Tube Lines had shown an improving trend since the start of the contract, with performance peaking at just above benchmark in the second quarter of 2004/05. Improvements in train graffiti helped the Jubilee and Piccadilly lines exceed bid expectations but, as with Metronet SSL, overall performance was brought down by poor station décor.

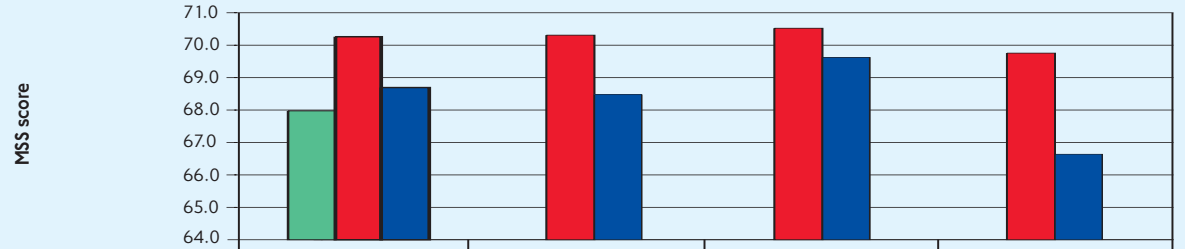
It is important that all the Infracos make the best of the station modernisation and refurbishment programme to deliver a sustainable improvement in this area. Overall, a 5% improvement will be needed if the Infracos are to achieve their bid targets for the third year.

Average Infraco Ambience Performance



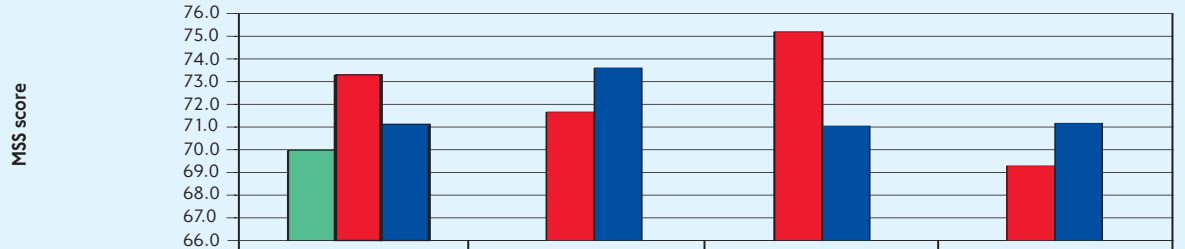
Average Infraco Ambience | Station Ambience | Trains Ambience | Average Infraco Bid

Metronet BCV – Ambience
Average MSS score 2004/05



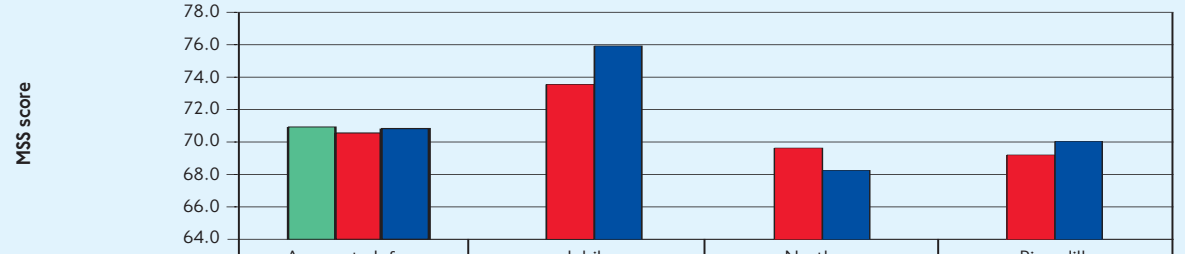
	Aggregate Infraco	Bakerloo	Central	Victoria
Contract Benchmark	68.0			
Bid projection	70.3	70.3	70.5	69.9
Achieved	68.6	68.4	69.7	66.7

Metronet SSL – Ambience
Average MSS score 2004/05



	Aggregate Infraco	District	Met, Cir and C&H	East London
Contract Benchmark	70.0			
Bid projection	73.2	71.6	75.1	69.2
Achieved	71.1	73.6	70.9	71.1

Tube Lines (JNP) – Ambience
Average MSS score 2004/05



	Aggregate Infraco	Jubilee	Northern	Piccadilly
Contract Benchmark	71.0			
Bid projection	70.2	73.5	69.4	69.1
Achieved	70.7	75.9	68.2	70.0

3.4 Service points

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

- 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.

For the first two categories each Infraco has a service point threshold, above which abatements are charged.[14] The threshold for engineering overruns is zero reflecting the severe effects these events have on customer service.

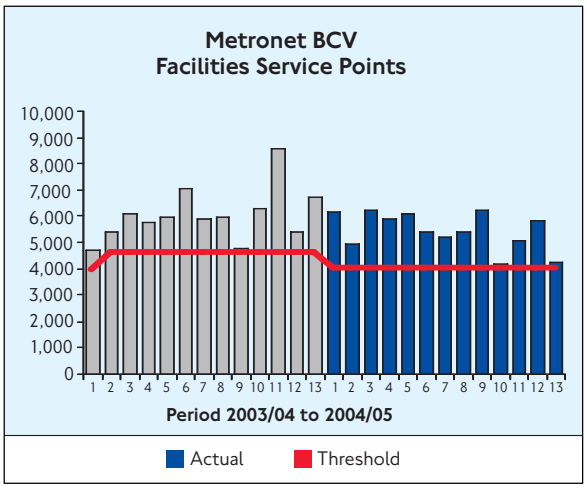
Facilities faults

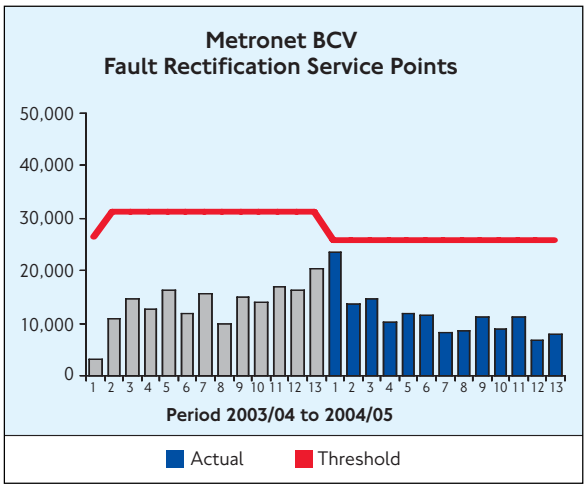
Overall performance generally continues to be worse than the defined contract threshold, which is the point at which penalties apply. Tube Lines and Metronet BCV were subject to abatement in every period of the year. Whilst Metronet SSL met the contract threshold in all but four periods, there is no sign of sustained improvement.

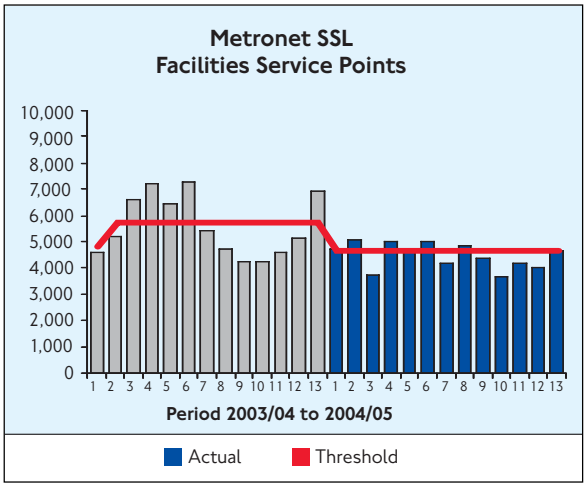
Fault rectification

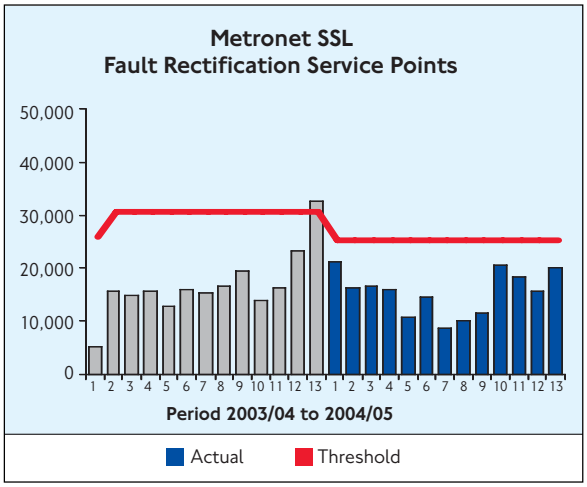
Performance on fault rectification has been better. For the second year running Metronet BCV avoided abatement and continues to deliver an improving trend. Metronet SSL similarly avoided abatement, however, there is no evidence of an improving trend. Tube Lines incurred abatements for fault rectification twice during the year, with service points generally at much higher levels than Metronet.

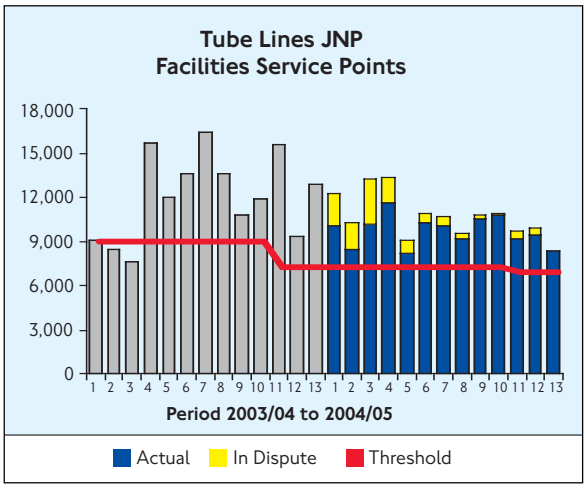
14 In this section performance is compared to the contractual threshold and not the expected bid service point values as the latter did not form part of the bid matrices. Both Metronet and Tube Lines are incurring less abatement for Facilities and Fault Rectification than the values set out in Annex 5 to Schedule 1.9 of the PPP contracts.

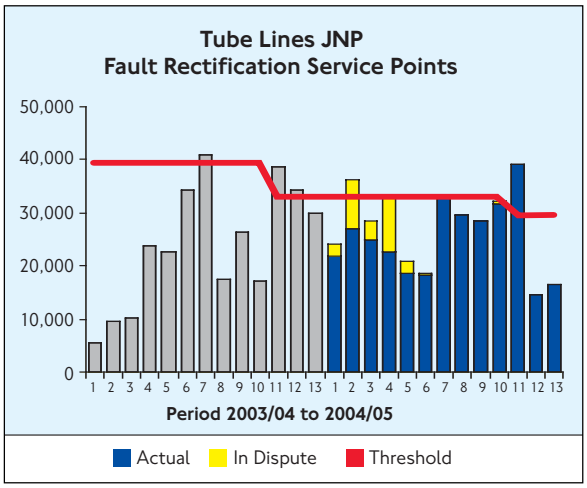












15 There is a backlog of Tube Lines' Facilities and Fault Rectification faults where the correct contractual coding is in dispute.

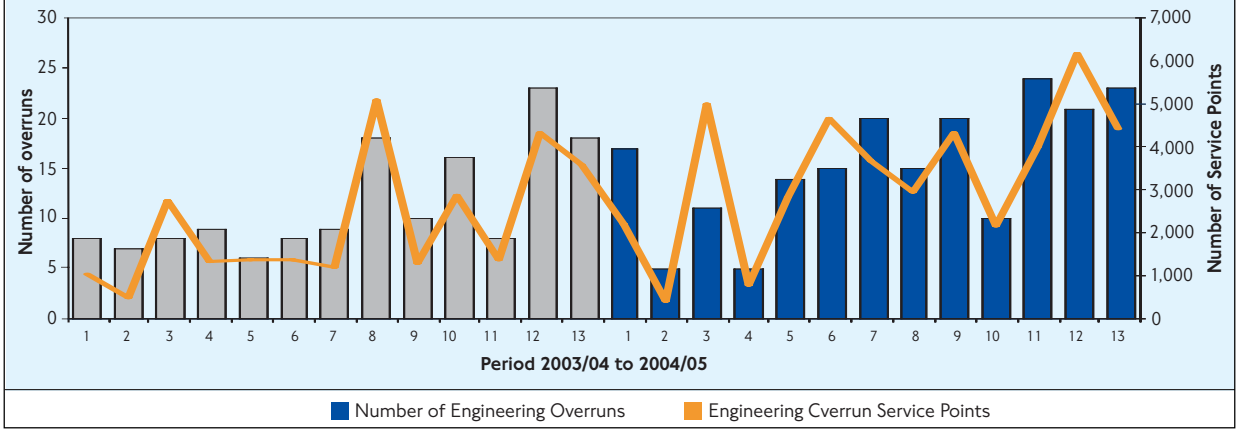
Engineering overruns

To deliver a reliable service it is essential that trains are able to begin running on time at the start of the traffic day (typically 0530 on weekdays). Any delay jeopardises our ability to provide a reliable service to over a million people in the weekday morning peak. This is why there is so much focus on over-running engineering work.

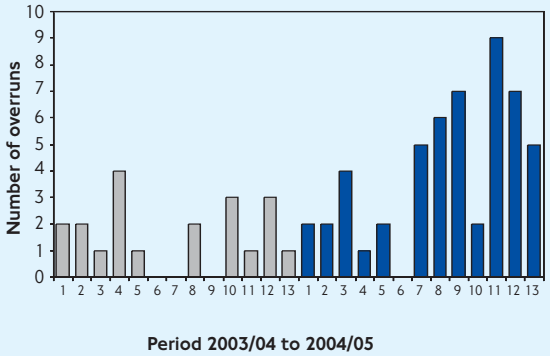
In the first year of PPP there were 148 overruns. Despite the financial penalties, overruns are still happening; last year there were 200, an increase of 35%. There has been a sharp increase in overruns by Metronet BCV such that by the second half of the year overruns were occurring at a rate of greater than one a week. The rate on Metronet SSL is even higher and a 7% increase on 2003/04. The number of overruns attributed to Tube Lines increased 28% over the previous year, again at a rate of more than one per week.

As the PPP work rate increases so will the pressure on the Infracos to hand back the railway on time and it is essential that they prioritise the management of this crucial factor.

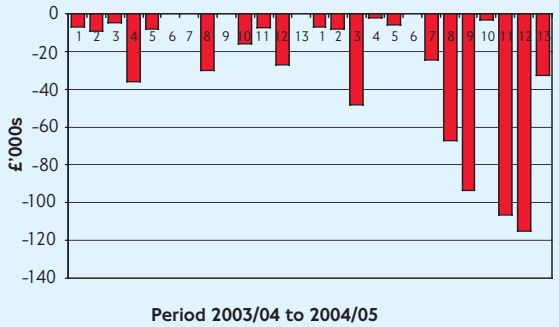
Engineering Overruns – All Infracos



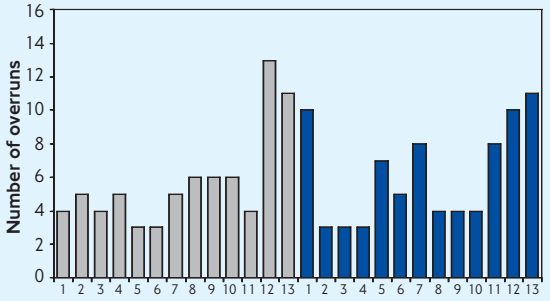
Number of Engineering Overruns – Metronet BCV



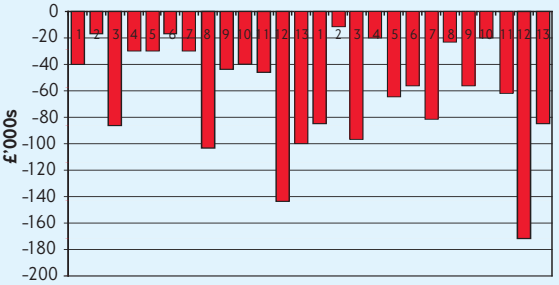
Metronet BCV SP Engineering Overruns – ISC Performance Abatement By Period



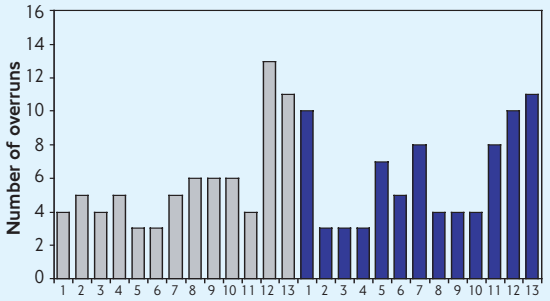
Number of Engineering Overruns – Metronet SSL



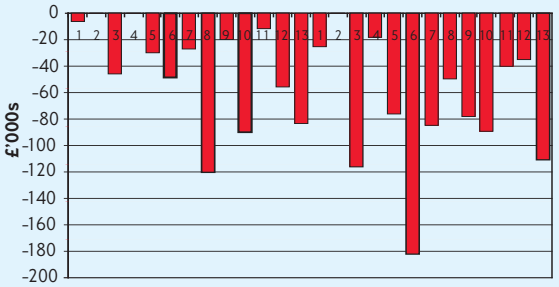
Metronet SSL SP Engineering Overruns – ISC Performance Abatement By Period



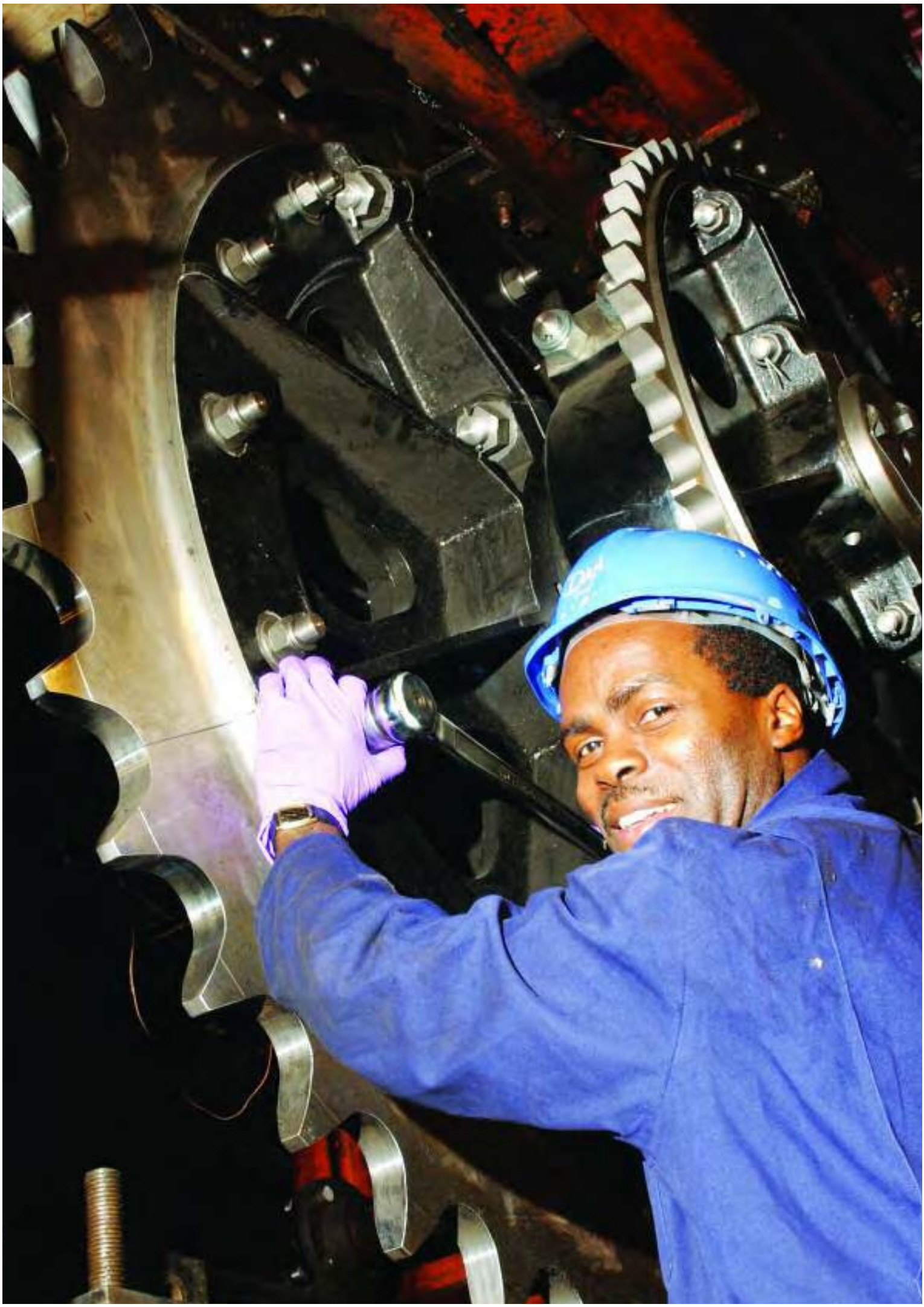
Number of Engineering Overruns – Tube Lines (JNP)



Tube Lines (JNP) SP Engineering Overruns – ISC Performance Abatement By Period



4 Asset performance



4. Asset performance

The previous chapter examined the second year through the eyes of the contract performance regime. This chapter looks at second year from the perspective of underlying asset performance – essentially by examining the frequency of asset failure.[16] This type of analysis provides an insight into how well the Infracos are doing at delivering the basic maintenance that is so crucial to the reliability of LU's service.

Ultimately, poor asset performance manifests itself as non-availability and the overall themes discussed here are familiar from the previous chapter.

For simplicity this chapter focuses on just five key asset categories: rolling stock, track, lifts, escalators and control systems (which include signalling and points).[17] Across most lines asset performance improved in the first four of the five categories, with some notable exceptions such as the Northern line fleet. Train control systems have not shown the same improvement and the signalling problems on the Northern line have contributed to a marked deterioration for Tube Lines overall.

4.1 Rolling stock

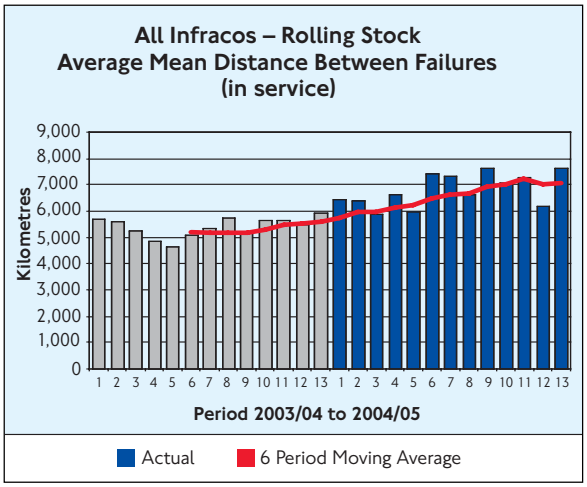
Rolling stock failures remain the primary cause of lost customer hours. Asset performance is assessed according to the mean distance a train travels between failures (MDBF) and the average duration of related disruption.

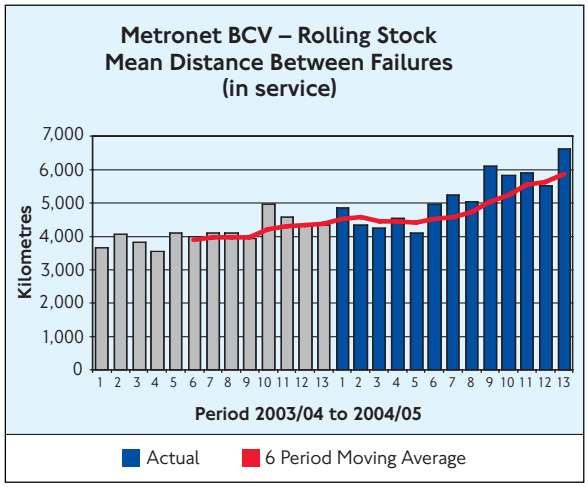
Across the entire LU fleet MDBF improved by 25%, from 5,382 km in 2003/04 to 6,741 km last year. This represents an improvement of 17% compared to the average performance before the PPP. In addition, the average duration of rolling stock related delays decreased by 16%. Almost all lines registered an improvement, with the District, Piccadilly, and Circle/Hammersmith & City fleets showing the strongest improvement.

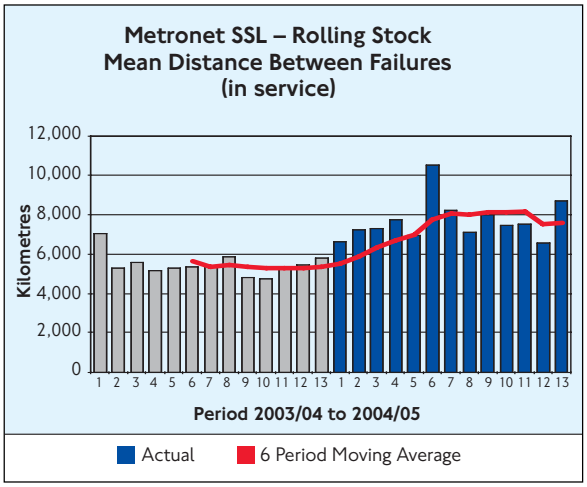
16 The measures used in this chapter are industry standard, rather than contractual metrics, such as Mean Time/Distance Between Failure and the average duration of delays greater than 2 minutes. These give a picture of underlying asset performance but do not show the service impact of failures in the same way as the availability PPP measure.

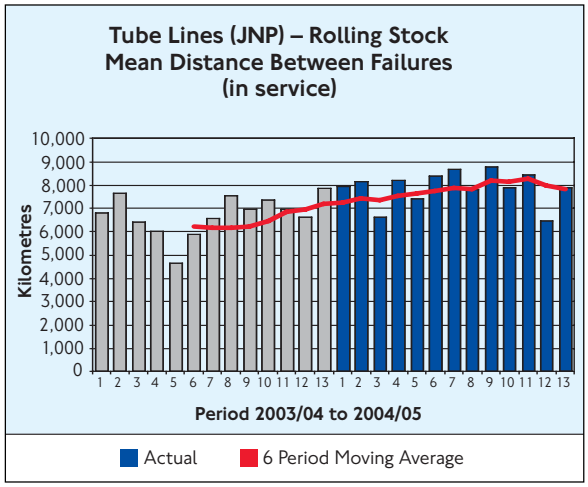
17 Asset performance figures in this chapter have been calculated using the same methodology, coding rules and data source as for those in the PPP report for 2003/04.

Rolling stock asset performance: Overall and Infraco level









Metronet BCV

The Metronet BCV average improvement in rolling stock MBDF was broadly the same as the network as a whole, while the average duration of disruption fell by a fifth, slightly better than the network as a whole. The BCV fleet includes the relatively new 1992 stock on the Central and Waterloo & City lines, and the older 1967 and 1972 fleets on the Victoria and Bakerloo lines, respectively.

In percentage terms the Central line showed the greatest improvement (33%) of all the BCV fleets, but this was from a low base of just 3,729km.[18] The Bakerloo fleet also started the year at a low point and continued a trend of gradual improvement, up 8% on the previous year overall and achieving an MDBF of over 4,000km in five of the last six periods in 2004/05. The Victoria line fleet shows a generally improving trend but significant variability between four week periods. Overall 2004/05 MDBF averaged 6,773 km, up 16% on the previous year. This improvement in underlying performance partly explains how Metronet was able to make additional trains available for timetabled service.[19]

18 The Waterloo & City fleet consists of just five trains, which does not permit robust trend analysis. However, the fleet is a run-on from that on the Central line and maintenance issues are similar.

19 Metronet declared that two additional trains would be available for London Underground to timetable into off-peak service from the start of 2004/05. This earned Metronet BCV a capability bonus (see previous chapter).

Metronet SSL

The average mean distance between rolling stock failures for Metronet SSL in 2004/05 was 7,606km, an improvement of 40% on the previous year. At 15% the reduction in the average duration of incidents was similar to that for the network as a whole. The 30-year old Circle/Hammersmith & City line stock has traditionally been the worst performing fleet on the network with an average MDBF of 2,689km for 2003/04. With Metronet addressing some of the main causes, e.g. door reliability, last year saw an improvement of 74% to 4,667km.

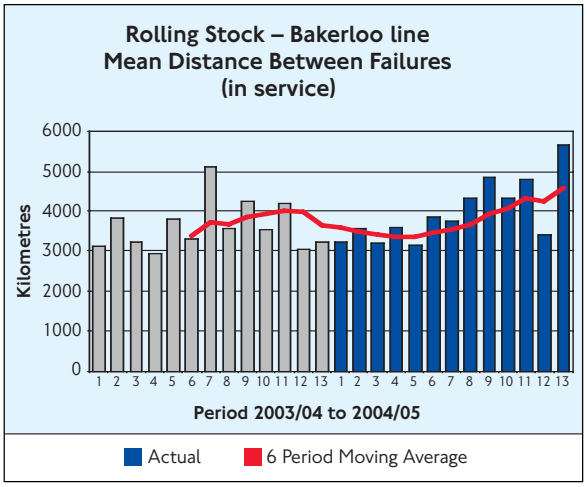
A significant performance improvement was also recorded on the District line; historically the best performer, the fleet average MDBF reached 13,757 km, up 55% on 2003/4. However, the slight downward trend towards the end of the year needs to be addressed, and it is very important that the hard-earned fleet reliability is not lost as the fleet is refurbished.

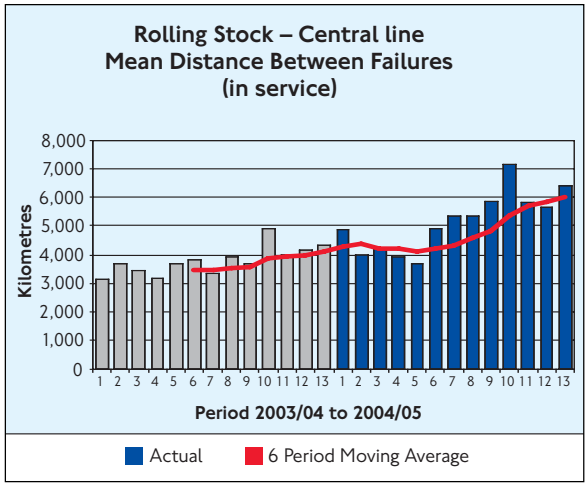
The Metropolitan line also recorded a steady 18% MDBF improvement, though this started to plateau in the latter part of the year. The East London line – though a relatively small fleet – showed an adverse trend with a 7% decrease in MDBF.

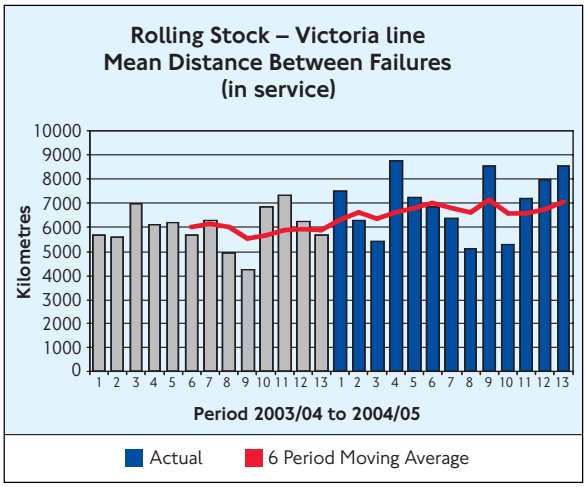
Tube Lines

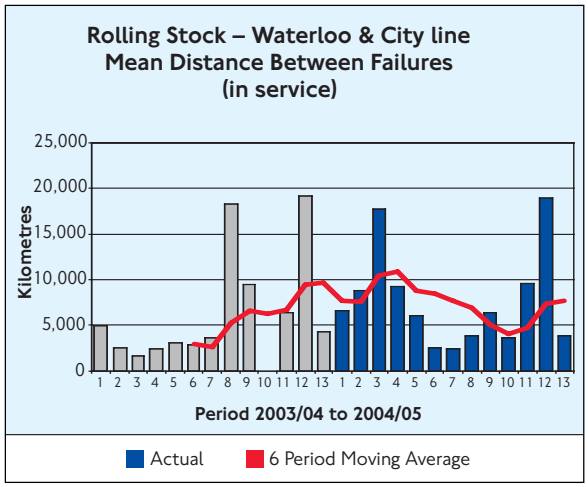
Tube Lines manages the two newest fleets on the Underground network on the Jubilee and Northern lines. Overall performance improved by 18% on the previous year, but the 1995 Northern line fleet saw a 15% fall in MDBF to 6,572km, continuing the downward trend since the start of PPP. The 1996 Jubilee fleet performed better, achieving an MDBF of 8,051km, up 32% on the previous year, and overtaking the Northern line for the first time. The real turnaround in performance has been on the Piccadilly line where resolution of axle box problems led to a 56% improvement overall to achieve an MDBF of 9,317km. Tube Lines invested heavily in the Piccadilly line rolling stock and the performance results show the benefit. We would like to see similar effort devoted to all asset types to achieve a faster rate of improvement.

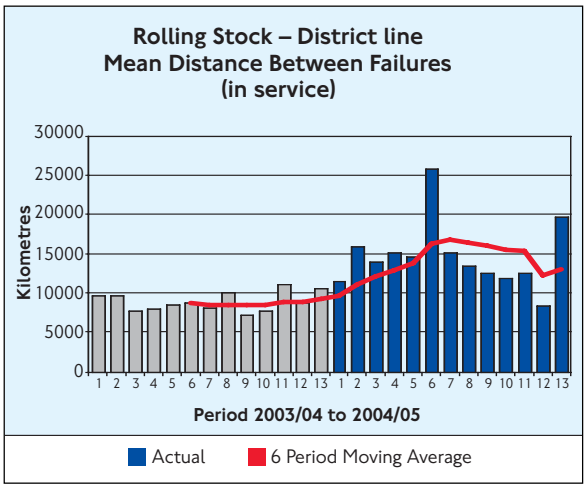
Rolling stock performance: Line level trends in mean distance between failures. Upward trends show improvement.

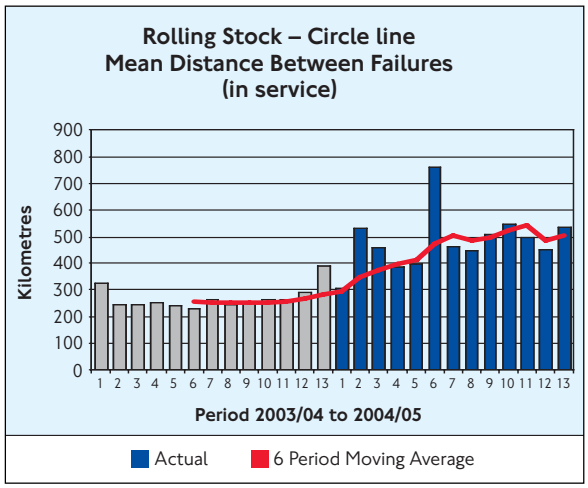


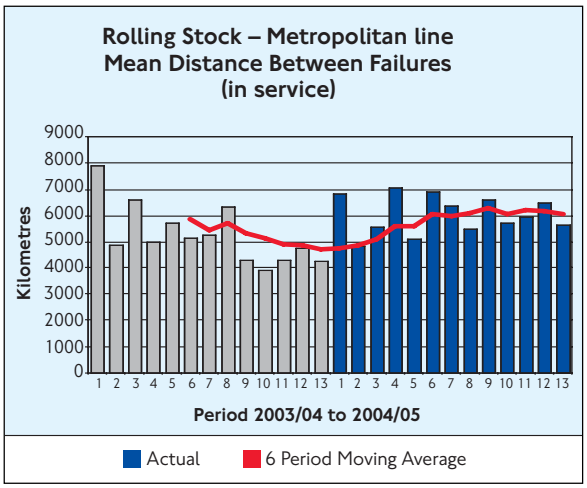


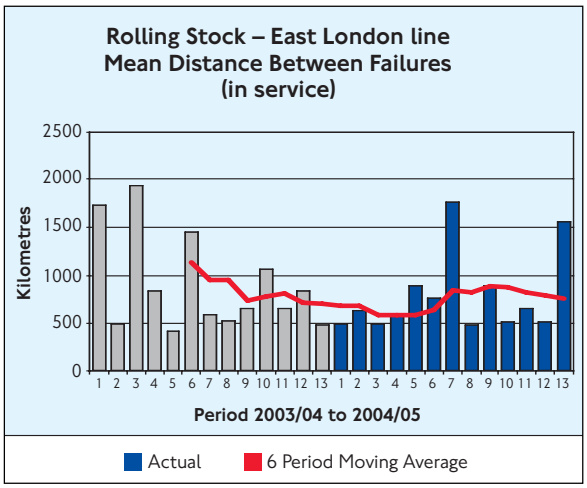


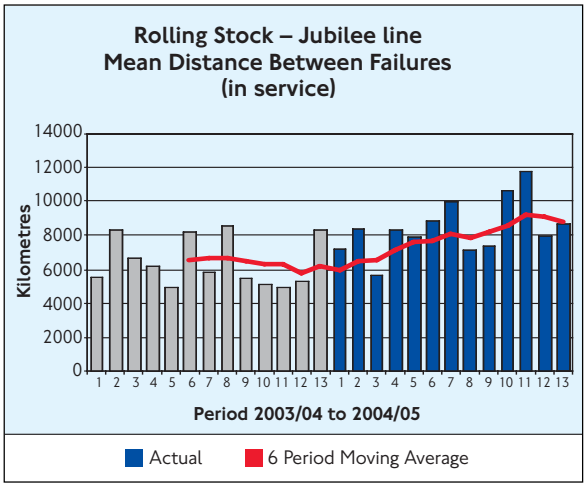


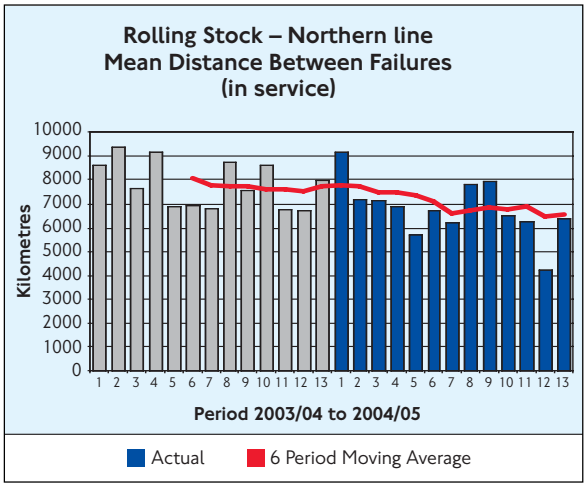


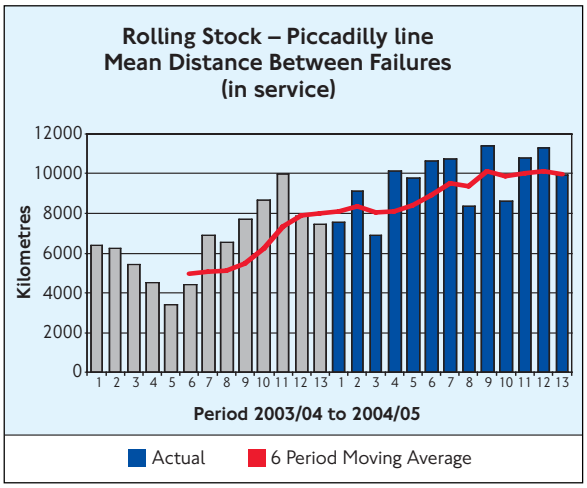



Rolling Stock – Metropolitan line
Mean Distance Between Failures
(in service)
Kilometres
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Actual
6 Period Moving Average


Rolling Stock – East London line
Mean Distance Between Failures
(in service)
Kilometres
2500
2000
1500
1000
500
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Actual
6 Period Moving Average


Rolling Stock – Jubilee line
Mean Distance Between Failures
(in service)
Kilometres
14000
12000
10000
8000
6000
4000
2000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Actual
6 Period Moving Average


Rolling Stock – Northern line
Mean Distance Between Failures
(in service)
Kilometres
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Actual
6 Period Moving Average


Rolling Stock – Piccadilly line
Mean Distance Between Failures
(in service)
Kilometres
12000
10000
8000
6000
4000
2000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 1 2 3 4 5 6 7 8 9 10 11 12 13
Period 2003/04 to 2004/05
Actual
6 Period Moving Average

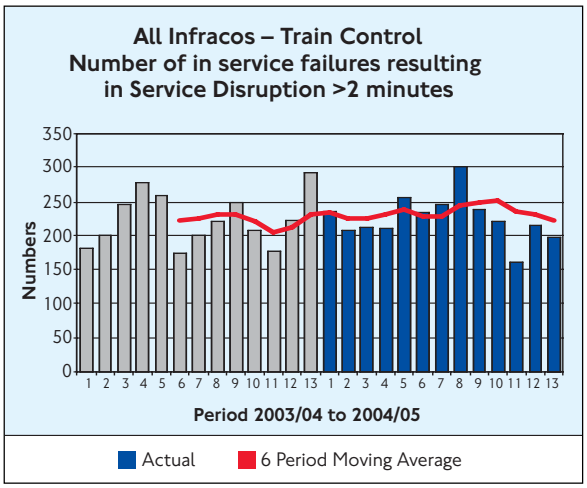
4.2 Signalling and control systems

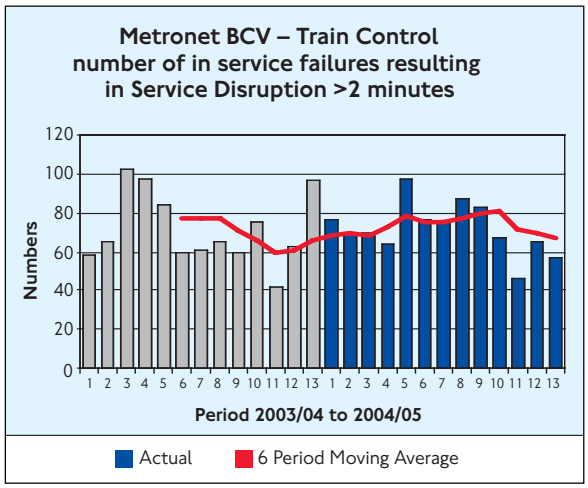
Delays due to signalling are the second biggest cause of asset related lost customer hours. Signalling systems are complex and involve not only the lineside signal assets, but also a range of other track-based, train borne and control centre assets. For simplicity, we have grouped all these assets together.[20]

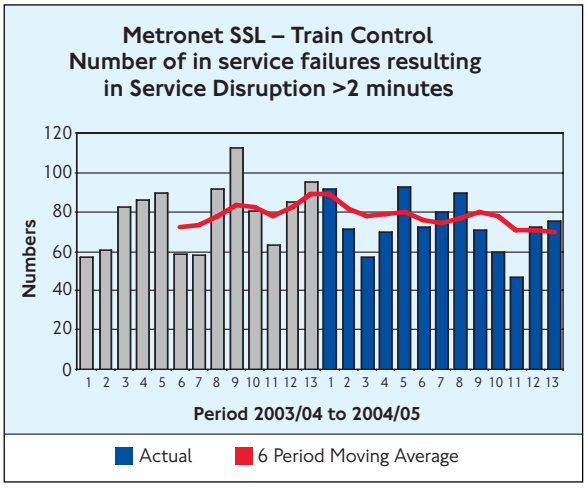
The improvements observed for other asset categories in 2004/05 have not been replicated for train control systems. Overall performance remained largely unchanged at the network level with an average of 227 failures per four-week period against 225 in 2003/04 (a deterioration of 1%).

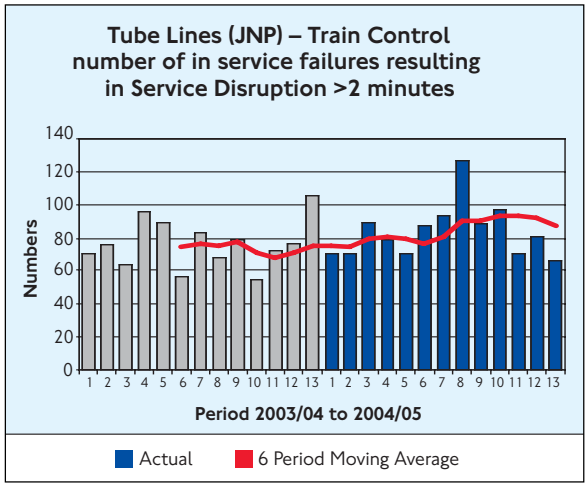
In overall terms, Metronet BCV showed no change at around 71 failures per period. However, the trend through the year has been an improving one. Metronet SSL showed a slight improvement overall with a 7% reduction to 73.4 service disruptions per period. However, the average duration of failures increased by around 10% particularly in the last part of the year. Tube Lines showed the worst performance overall, with a deterioration in the average service disruptions per period of 10% from 75.3 in 2003/04 to 82.8 last year. This is consistent with the lost customer hours results seen on the Northern line in particular.

Signalling and control systems performance









20 This category therefore includes signal and points failures, track circuit failures and faults with automatic train operation systems. The metric used for both control and track is the number of in-service failures resulting in delays greater than two minutes per four-week period.

4.3 Track

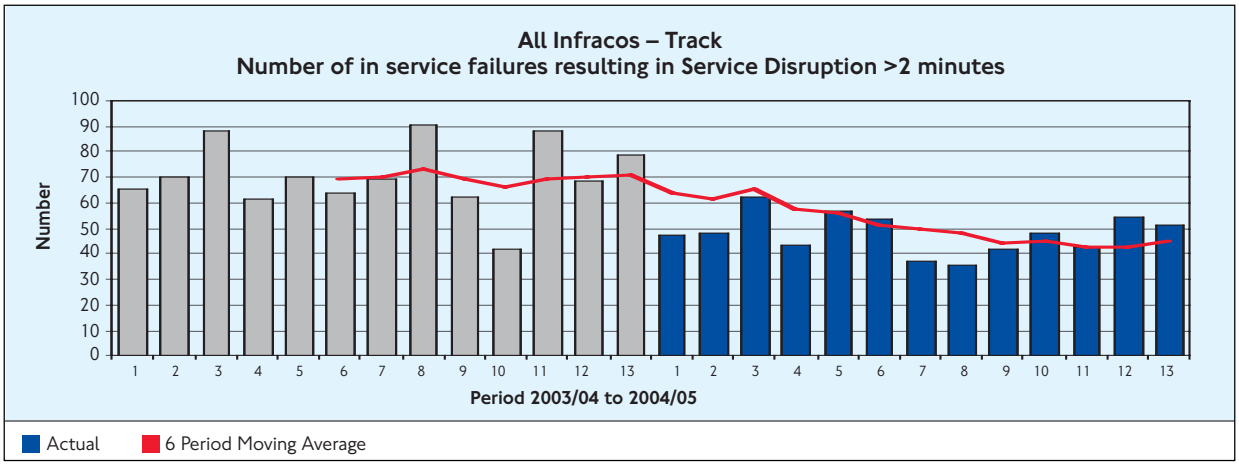
The average number of track failures decreased by 32% over the last year to an average of 47 incidents per four-week period, down from around 70. The average duration of track related delays decreased even more significantly, down 53% with average delays over 30 minutes only recorded in one four-week period of 2004/05 compared to eight the previous year.

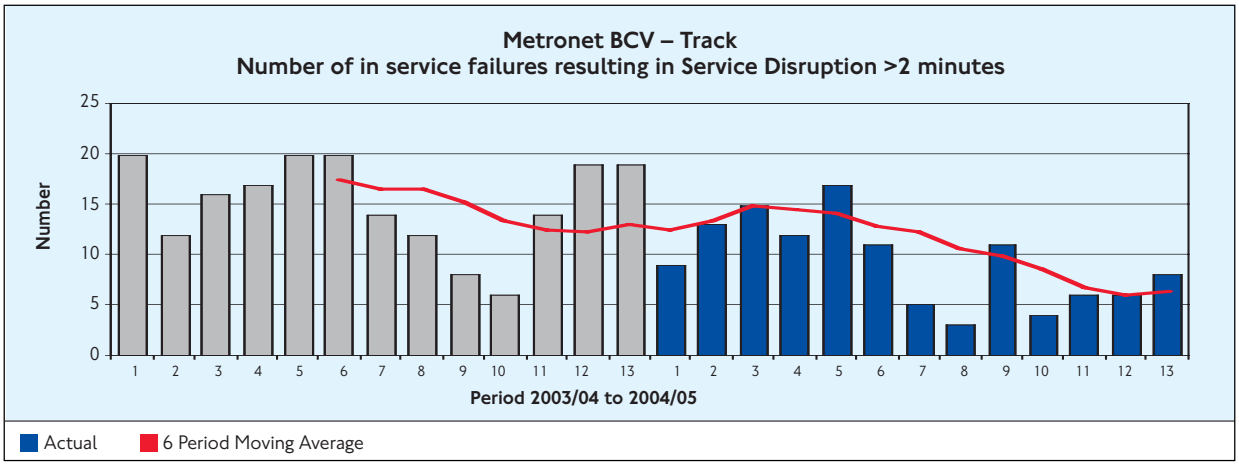
The downward trend in track failures on the Metronet BCV lines continued throughout last year. Overall, the average number per four-week period fell to nine from fifteen, a 39% improvement. The average duration of failures towards the end of the year is, however, a concern. Following inconsistent performance in 2003/04 a downward trend is now becoming evident on the sub-surface lines, with the average number of incidents per period falling by around a third to 18. The Tube Lines network also saw an improvement of around a third, to an average of 20 failures per period.

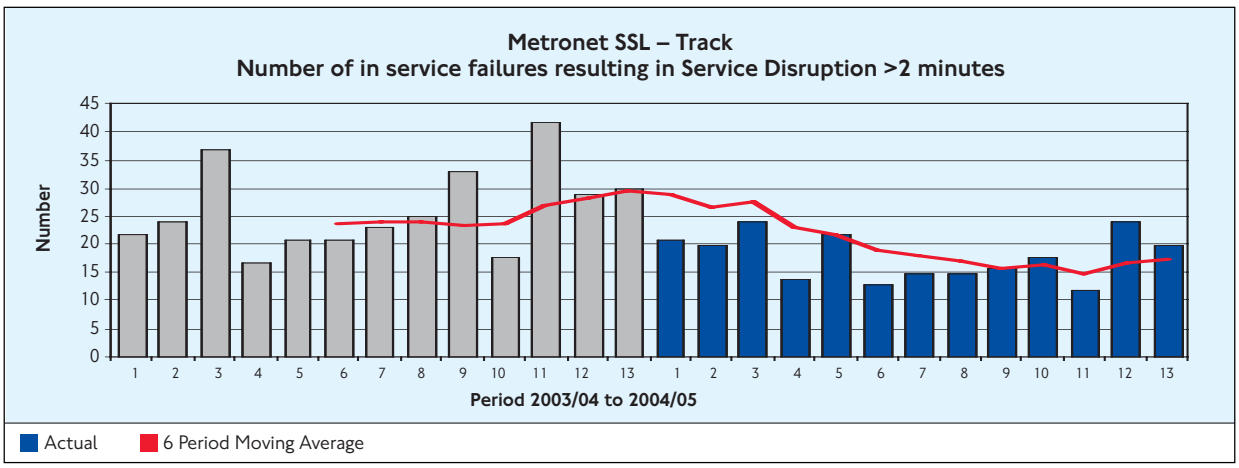
While there has been an improvement in track performance across the network, there remain a number of underlying concerns around track. The number of broken rails remains a concern despite the intensification of the Infracos' ultrasonic testing. This suggests an on-going deterioration in the track asset that will need increased attention over the coming years.

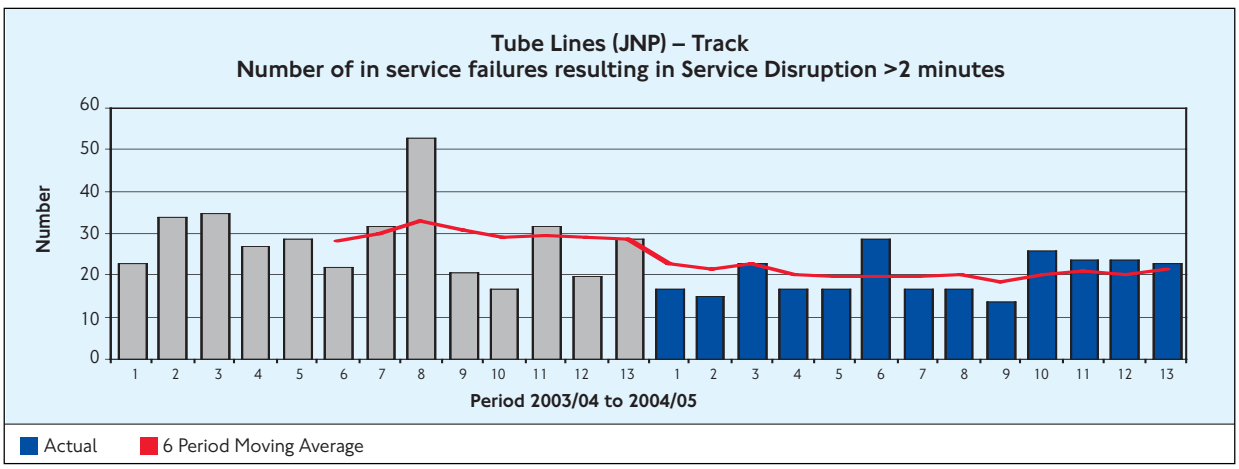
The two corrective action notices to date have been related to Metronet's track work in the last year. Whilst the PPP affords a significant increase in long overdue track maintenance and renewals, both Metronet and Tube Lines will have to focus on improving both the quality and quantity of delivery in this area if they are to reduce customer inconvenience through engineering overruns and speed restrictions.

Track asset performance









4.4 Escalators and lifts

Of the station based assets, escalators and lifts cause the highest number of lost customer hours and asset failures can cause not only extended walking times for customers, but also full station closures where it is not safe to operate the station without functioning lifts or escalators. For this report, lift and escalator asset performance is assessed in terms of the mean time in days between failures.

The average number of days between escalator failures increased over the last year to 51.4 days, up 7% on the average of 47.9 days for 2003/04. However, this improvement was not consistent over the three Infracos.

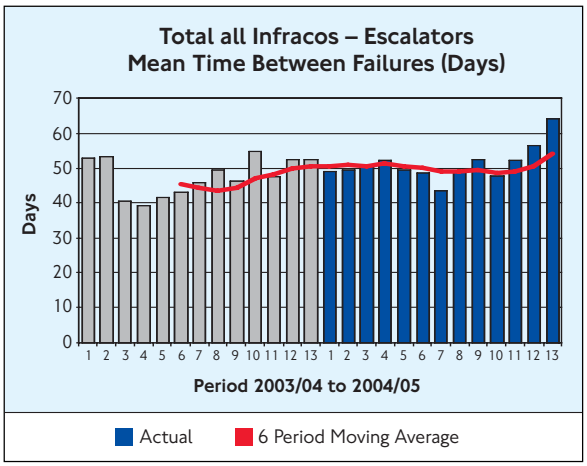
Tube Lines achieved a significant improvement in the last quarter of the year, achieving over 70 days between failures in the last four-weeks. Overall, this put Tube Lines' average for the year up to 50.3 days, up 19% on the previous year, though still the worst performing of the Infracos. By contrast, Metronet BCV suffered an 11% deterioration, taking the average days between failures from 60.8 to 53.9 days. The average number of days between failures on Metronet SSL escalators remained broadly unchanged at a little over 60 days, but the average duration of failures worsened dramatically, undoing some of the good work achieved at the end of 2003/04.

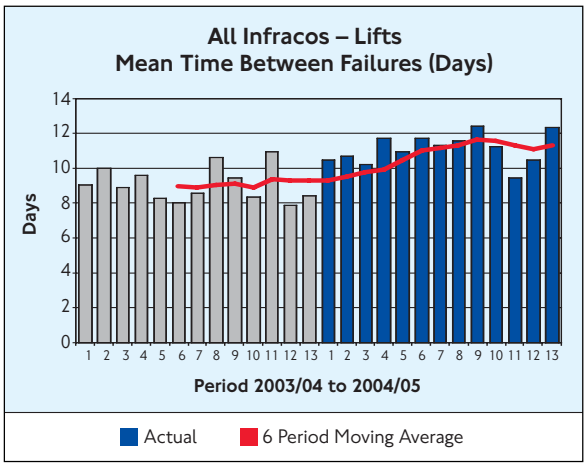
The network average mean time between lift failures improved from 9.1 days in 2003/04 to 11.2 days last year, and this represented a general improvement across most periods in the year.[21] However, this improvement is marred by an increase in the average duration of lift related service disruptions.

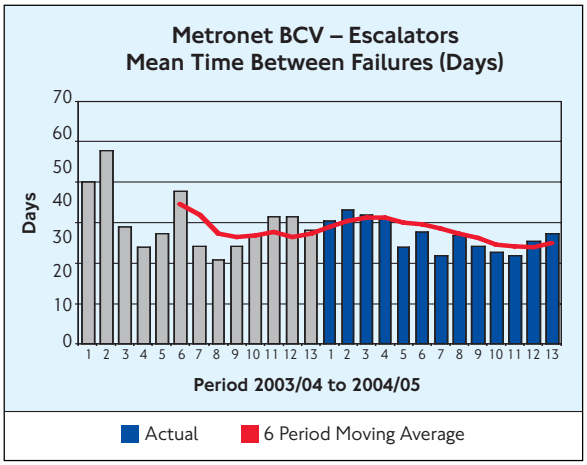
The increase in mean time between lift failures (MTBF) is broadly consistent across all three Infracos. At an average of 14.5 days, Metronet SSL achieved the highest overall MTBF (though there are fewer lifts on sub-surface stations), but worryingly the average duration of failures is worsening. Metronet BCV and Tube Lines both improved by around a fifth to a mean time of 10.3 and 11.7 days respectively.

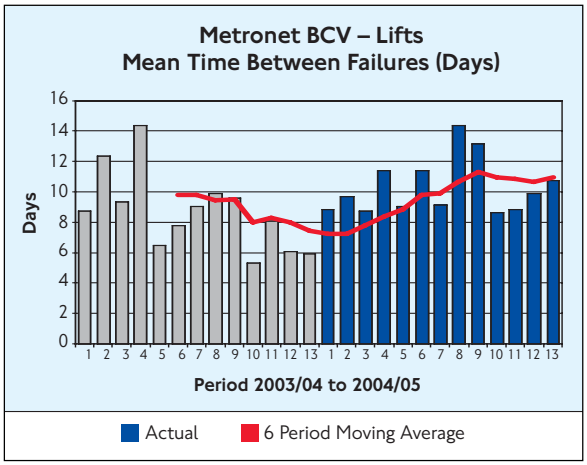
21 These figures exclude new step free access lifts.

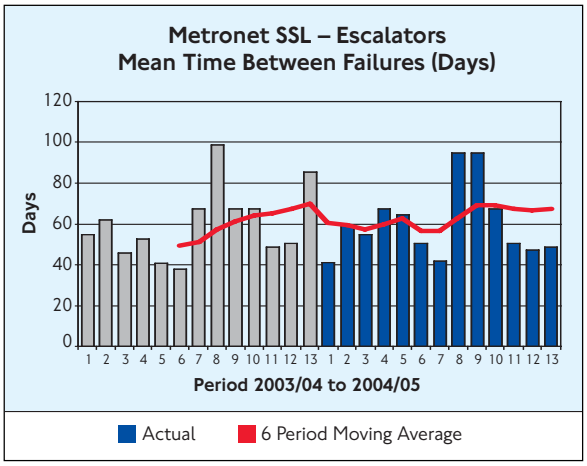
Escalator and lift asset performance

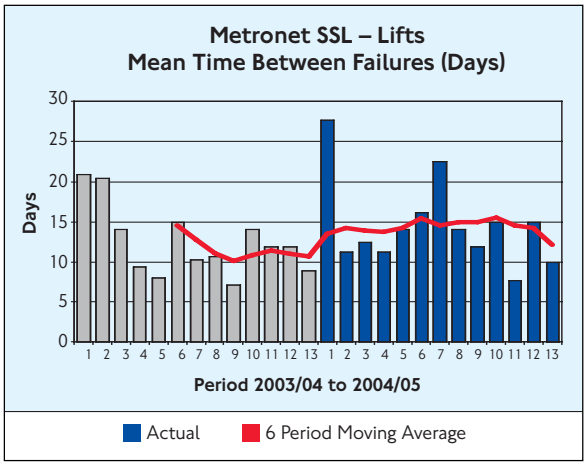


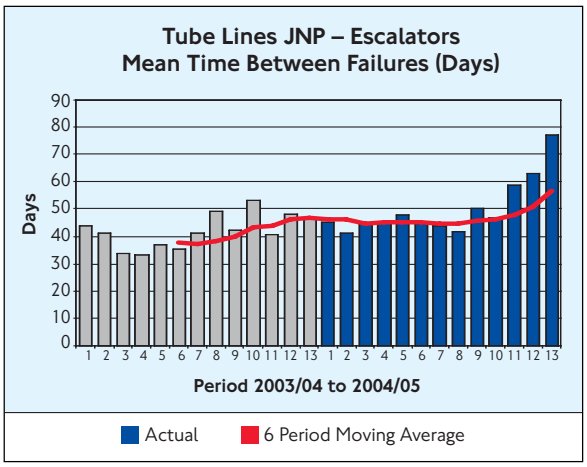


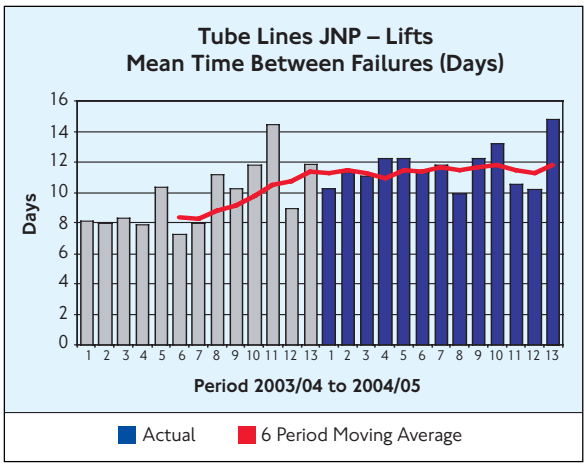




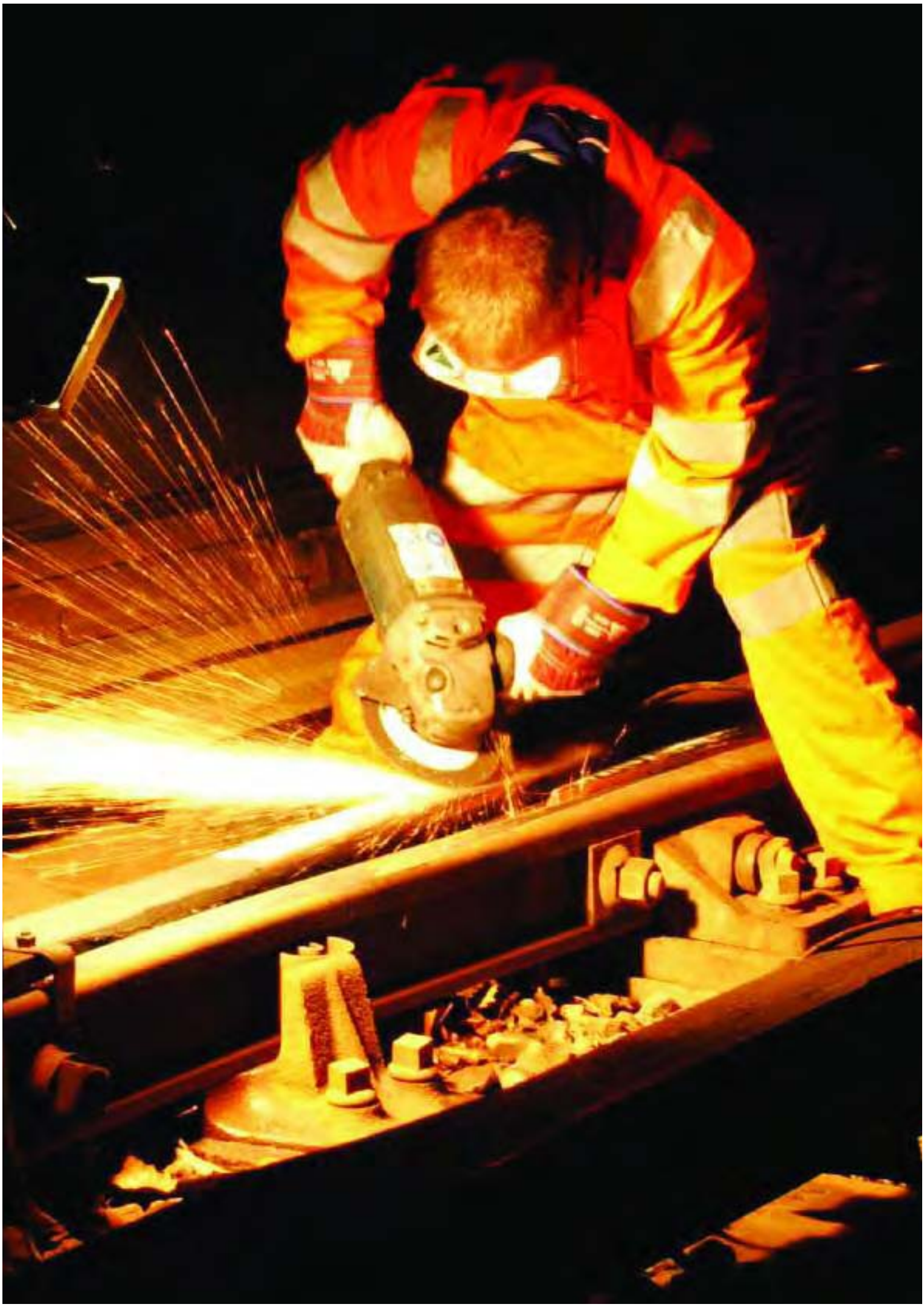








5 Renewals and upgrades



5. Renewals and upgrades

Asset performance over the long term depends not only on the maintenance regimes that Metronet and Tube Lines have in place, but also on their ability to deliver the renewal and upgrade of assets. This is historically an area where LU has suffered due to inconsistent and insufficient funding – the problem that PPP was designed to solve. The PPP intends a high level of renewal and upgrade activity in the first half of the contract. In this second year review, therefore, it is appropriate to assess the performance of the Infracos in this area and this chapter looks in turn at:

- Track renewal
- Lifts and escalators refurbishment and replacements
- Station enhancements
- Line Upgrades and related projects

The PPP contracts specify completion dates for certain types of works, such as line upgrades and station enhancements. For other types of asset (such as lifts, escalators and track) the contracts set out asset condition requirements for each 7.5 year period and residual life requirements for the end of the contract. These are in addition to the asset performance regime described in chapter 4 and the safety and engineering standards governing the condition of assets. The Infracos must decide on a renewal strategy that will meet these requirements in the most economic and efficient manner. The Infracos are liable for financial penalties if they fail to meet the latest due dates or the asset condition benchmarks

This chapter focuses on how the Infracos have performed in terms of delivery of renewals. The following chapter then goes on to explore the way in which asset renewal decisions are being made by the Infracos and the extent to which the Infracos are able to demonstrate that their respective behaviour conforms to good industry practice in asset management.

5.1 Track

Renewal of the track asset involves more than just rail replacement: it also includes reconditioning of the track bed, ballast and sleepers.[22]

According to the combined bids we should expect a third of the total 845km of track maintained by the Infracos to be renewed in the first 7.5 years of the contract. Unfortunately, the Infracos are falling well behind overall as a result of Metronet's performance. At the end of the second year 42.3km of track had been replaced, 31% lower than the 61km promised in the bids. Despite rephasing their programmes in the annual asset plans submitted just last year, actual performance has still fallen 3% short of the revised plan to renew some 43.5km of track in the first two years.

Given the constraints of track access and limited resources such as specialist engineering trains, we have serious concerns about whether the new profiles of work are achievable.

22 This section therefore includes all ballasted track replacement (BTR), enhanced track replacement (ETR), as well as tube reconditioning (track replacement in tunnel sections). Note that 'plan' figures come from the draft 2005/06 AAMP plans and bid phasing is based on the Schedule 1.9, Annex 5 cost phasing.

A further concern is that the plans show greater levels of heavy track maintenance in place of renewal activity. The Infracos' argument that over a prolonged period this approach has the same result in terms of asset condition and life expectancy is far from proven. Furthermore such an approach represents a departure from the levels of renewal and replacement investment promised in the bids.

Metronet BCV promised to renew around half its 216km of track in the first 7.5 years. So far it has achieved less than planned and the total to date, 15.2km, is 41% less than that promised in the bid. The rephased plans now require Metronet BCV to achieve almost 22km of renewal in 2007/08. As this is double last year's actual renewal work (and is equivalent to the level that LU used to achieve for the network as a whole), and as it will come at a time when Metronet BCV's upgrade work will require significant track access, we have serious doubts about this target and hence the quality of planning behind Metronet BCV's track programme.

In percentage terms Metronet SSL's performance to date is furthest behind its bid. Metronet SSL's bid was predicated on renewal of 35% of the 301km of sub-surface track in the first 7.5 year period, of which 21.7km would be delivered in the first two years. In its annual plan last year Metronet SSL revised this down to 9.4km in the first two years. As with Metronet BCV, actual performance has fallen short of both bid and plan with only 7.7km delivered to date – some 65% less than bid.

The track on the south side of the Circle line has been an early priority. The track bed in this area has not been reconditioned since it was constructed over one hundred years ago and the renewal works should lead to significantly improved reliability. The work has required a series of weekend closures.

As with Metronet BCV, Metronet SSL's plan for the sub-surface lines show, a significantly higher work rate later in the first contract period, peaking at 24km in 2008/09. Although a higher work rate should be possible as the focus moves from tunnel section work to open air track work, Metronet SSL will need to deliver up to five times what it has achieved so far.

Tube Lines has delivered 19.4km of track renewal in the first two years, 6% less than plan. Against the bid, Tube Lines fell short in the first year but achieved better than bid in the second year. In aggregate terms actual performance is 8% better than bid. The Tube Lines' bid aspires to 68km of track renewal, a fifth of the JNP network, in the first period.

Overall, Metronet's performance is a serious concern. The concerns are not only about programme, but also about cost. Relative to budget Metronet BCV has delivered 17% of the predicted volume but incurred 25% of planned cost. Similarly Metronet SSL has achieved only 8% of planned work but incurred 16% of planned cost. This is due to high fixed payments to Metronet's contractors not directly related to volumes of work delivered with smaller variable payments based on delivery.[23] It is interesting to note that cost and volume are broadly consistent for Tube Lines.

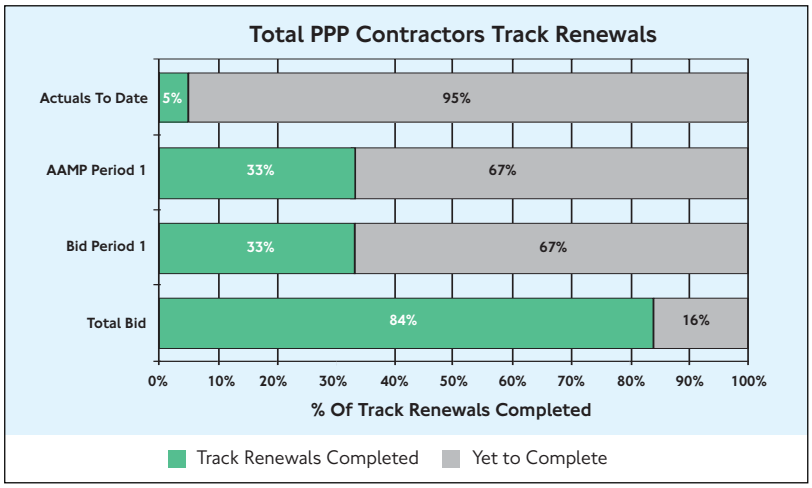
23 This theme is discussed further in Chapter 7 below.

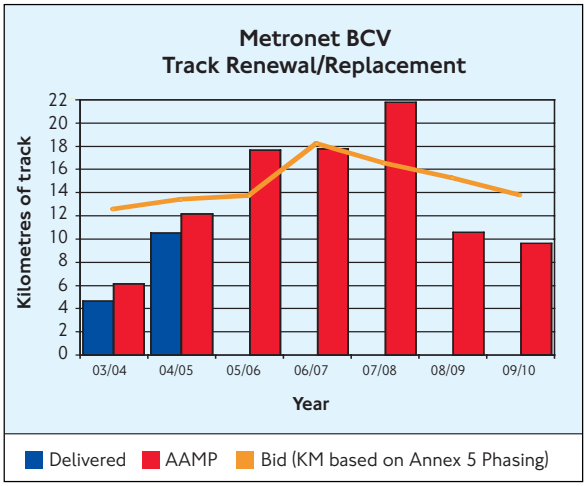
The Infracos are planning to renew 35.2km of track during the third year of the contract. Assuming this is achieved (debatable given performance so far by Metronet) this would mean that Metronet would have delivered 83% of what was promised in the bid on BCV, and just 42% on SSL. Tube Lines would be running ahead of bid. Overall, if plans for the third year are achieved, 9% of the total track maintained by the Infracos would have been renewed. This compares to 11% set out in the combined bids and the 5% achieved to date.

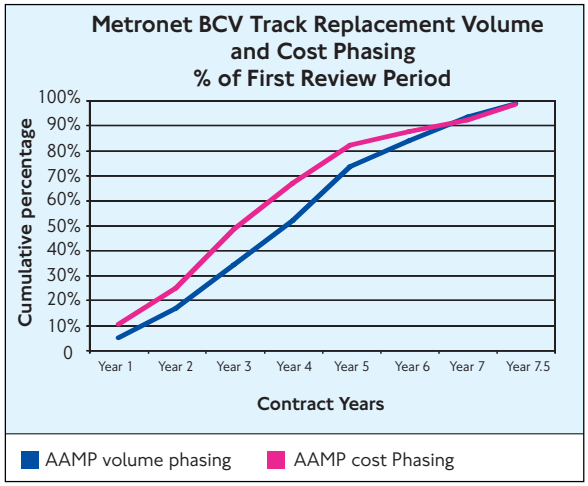
Track renewal Kilometres	**Cumulative to date**	**Plan for year 3**	**Hence total expected at end of year 3**	**Bid total to end of year 3**	**Expected as % of bid**
Metronet BCV	15.2	17.6	32.8	39.6	83%
Metronet SSL	7.7	5.2	12.9	30.5	42%
Tube Lines	19.4	12.4	31.8	22.6	141%
Total kms	42.3	35.2	77.5	92.7	–
as % network	5%	–	9%	11%	–

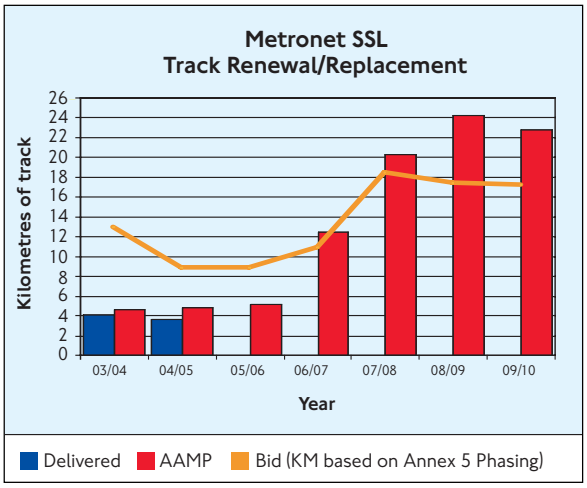
Track renewal

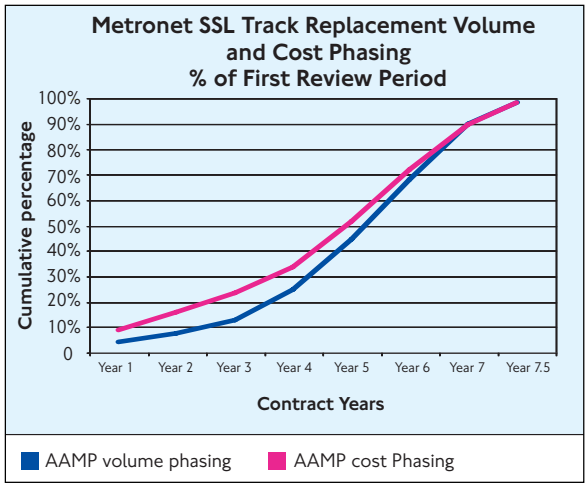
The chart shows overall progress against plan and bid. The charts below compare each Infraco's actual against bid and plan; and cost against volume delivery.

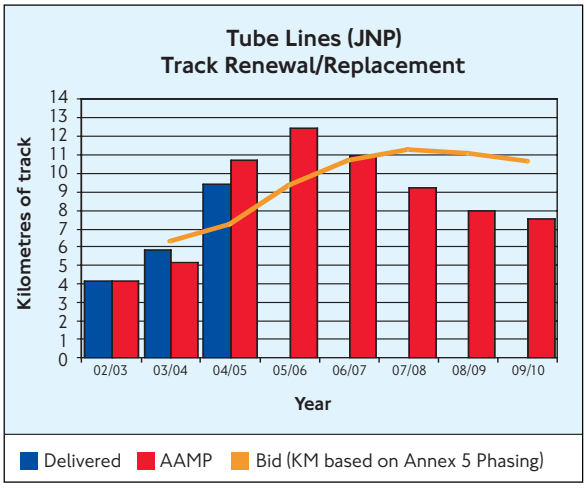


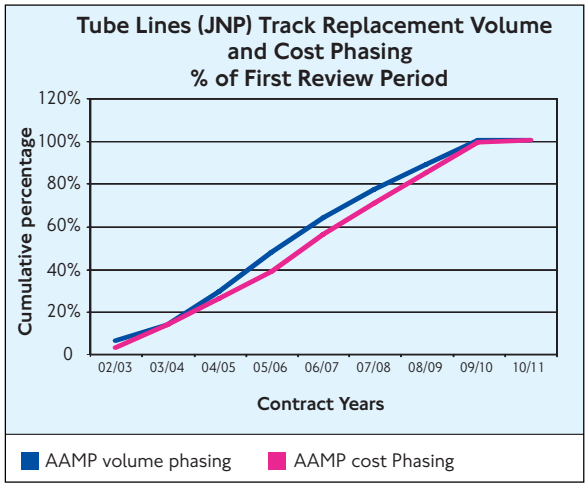












5.2 Lifts and escalators

The bids assumed that the entire fleet of lifts and escalators would undergo renewal during the life of the contract. The bids promised 59% of the fleet to be completed in the first 7.5 year period, though this has been revised down slightly in the plans. In the first two years of PPP 58 machines (11%) have been refurbished or replaced.

Lifts

Metronet BCV currently manages 18 lifts and the Metronet bid promised renewal of 17 of these in the first 7.5 year contract period. However, the asset management plan submitted by Metronet has reduced the total to 11 and rephased work to later in the first 7.5 year period. So far only two lifts have been refurbished, both in the first year of the contract.

In line with their bid, Metronet SSL has not yet completed any lift renewals. However, its plan shows a significant rephasing of future works.

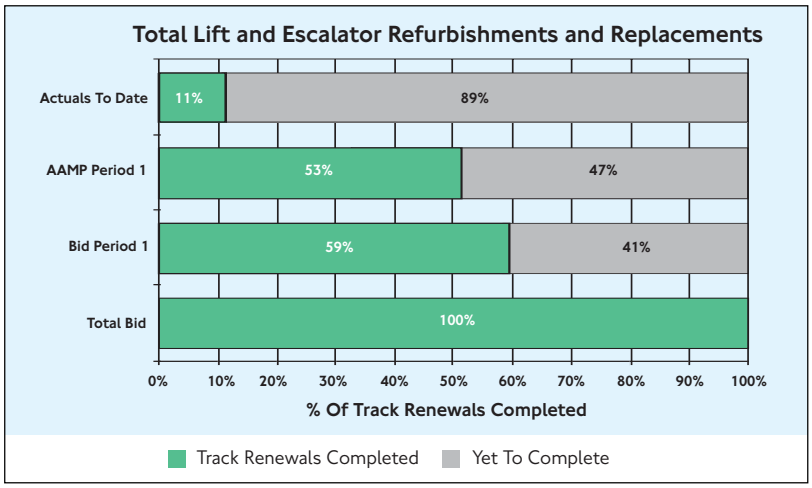
Neither of the Metronet Infracos shows a cost phasing in its plan that obviously reflects the new profile of work. This is a concern as it may indicate payments to sub-contractors running ahead of actual delivery or alternatively, it may show poor planning.

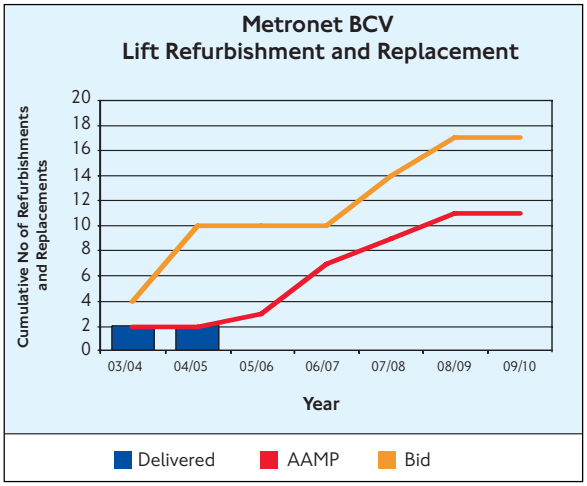
To date Tube Lines has not delivered any lift refurbishments or replacements despite promising 15 by the end of the first year and almost 30 by the end of the second year in its bid. The latest Tube Lines plan still projects the same number of lift refurbishments or replacements by the end of the first 7.5 year period as the bid, but with more being delivered in the later years.

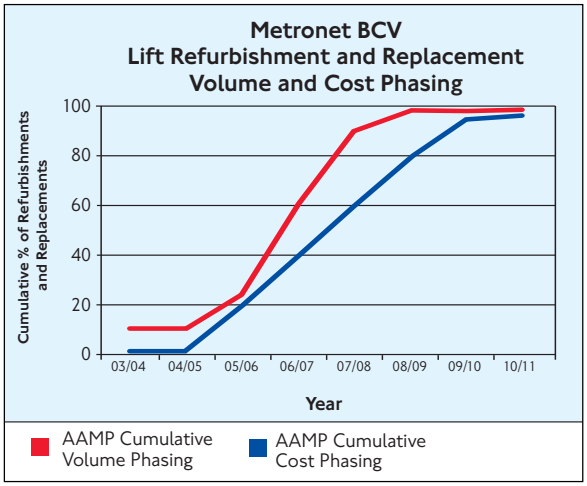
The explanation for this is that Tube Lines is now proposing an alternative approach to lift renewal, which would see incremental component replacement rather than conventional half-life renewal. Tube Lines have committed to explain, following detailed analysis, their lift renewal strategy in their forthcoming Annual Asset Management Plan.

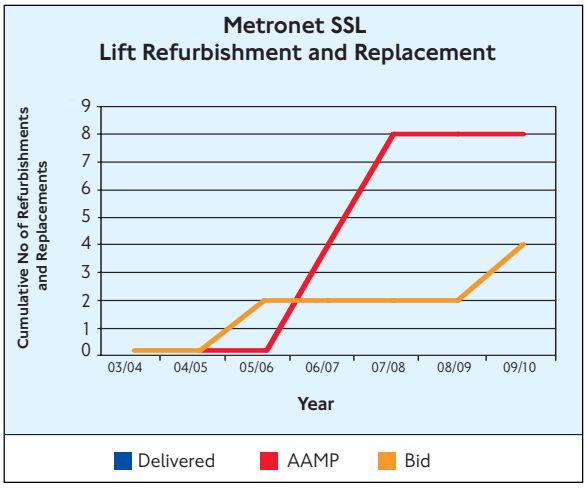
The top chart shows overall lift and escalator performance to date, plan and bid for the first 7.5 years and the bid for 30 years.

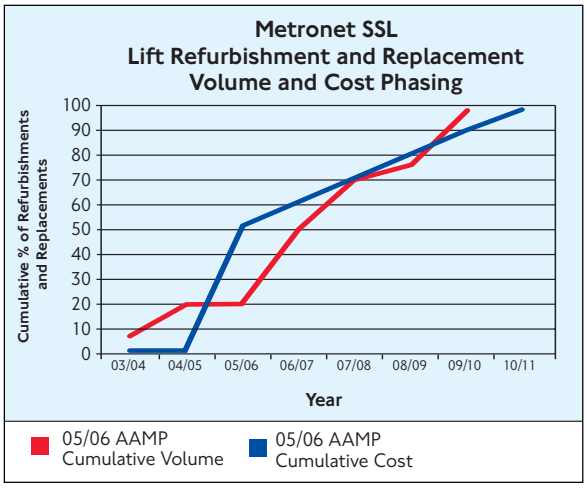
The charts below summarise lift performance against plan and bid, and planned costs against planned work

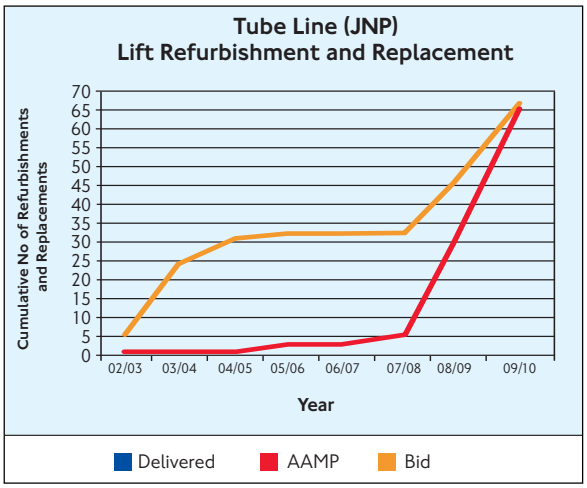


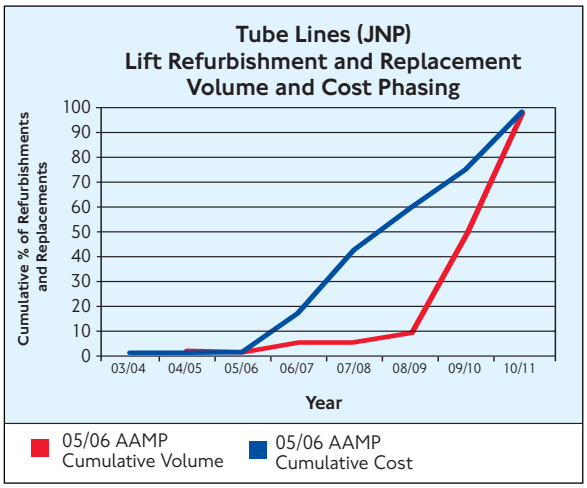












Escalators

The Metronet bid promised renewal of around half the 135 BCV escalators in the first 7.5 year period. At the end of year two, Metronet BCV is slightly ahead of target having completed 19 refurbishments. Unfortunately, this achievement has been tainted, firstly by a 21% reduction in the total number of renewals over the first period in its asset management plan compared to bid. Secondly, the volume and cost cumulative phasing schedule in Metronet BCV's plan shows some major anomalies that Metronet BCV has been unable to explain. This highlights concerns over the allocation of costs and the accuracy of Metronet BCV's plan.

Metronet SSL is also running slightly ahead of the expectation in the bid, having completed 11 projects. The plan now shows a higher rate of renewal works than assumed in the bid, with 25 escalators rather than 17 scheduled for completion by 2010. While this is encouraging, the cost performance is a cause for concern. Metronet SSL has incurred 50% of the expected costs for only 25% of the expected volume. As with track, this may indicate payments to sub-contractors running ahead of actual work done.

Tube Lines has by far the largest escalator fleet – 224 machines in total – mainly due to the large number on the Jubilee line extension. The current plan is broadly consistent with the bid in terms of the total number of renewals in the first 7.5 years but the plan shows a less aggressive phasing.

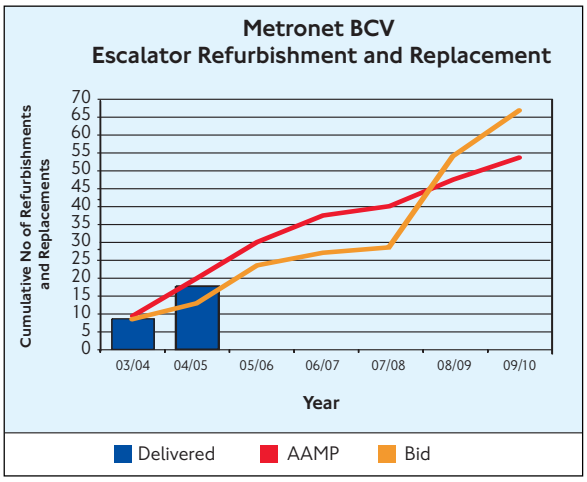
To date Tube Lines has completed 17 projects, which is consistent with its asset management plan, but significantly fewer than promised in the bid by this point. Tube Lines attribute this to delays in concluding their escalator outsourcing strategy. Costs and volumes are more consistent than for Metronet, though incurred cost is slightly greater than achieved volume.

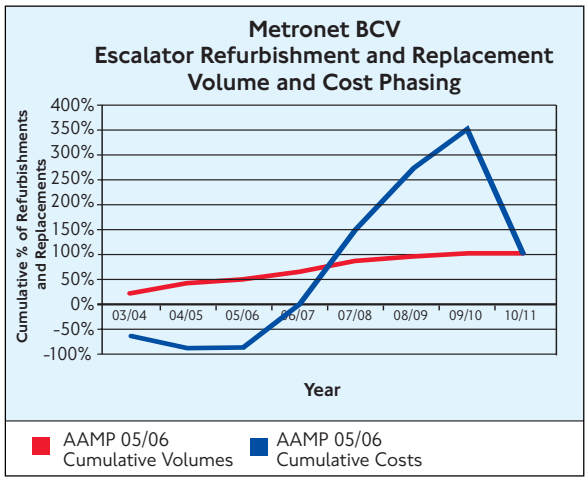
Tube Lines has achieved some notable success in reducing the downtime for escalator renewals. Traditionally such projects can take six to nine months, but Tube Lines was able to complete an escalator replacement at Green Park in just nine weeks through greater work off-site, improved supply chain management and 'round-the-clock' working on site.

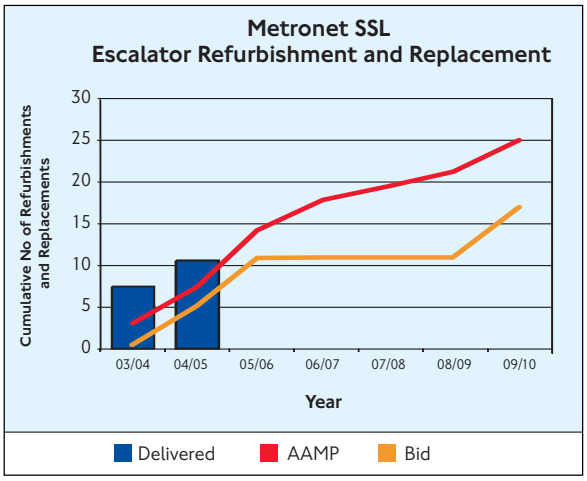
Conclusion

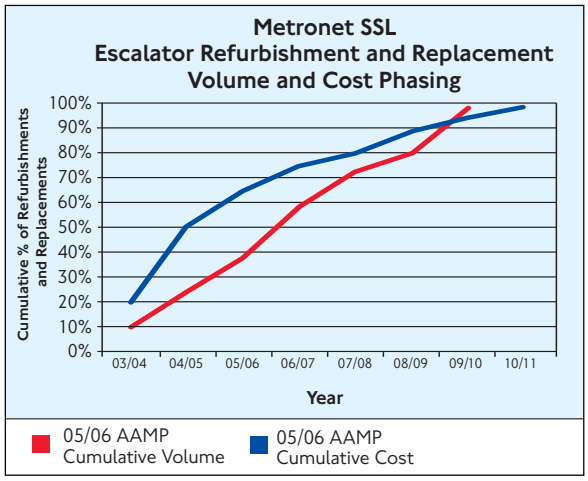
Overall the picture for escalators is better than that for lifts. Assuming that the Infracos deliver according to their plans in year three, Metronet will be a third ahead of bid on escalators but still someway behind on lifts. Tube Lines would still be lagging a long way behind its bid for escalators and would have undertaken only two lift renewals. There must be a continuing focus in this area, particularly on Tube Lines' alternative approach to lift renewals and Metronet's cost planning information. Infracos have some way to go to ensure that they can meet their bid promises by the end of the first contract period.

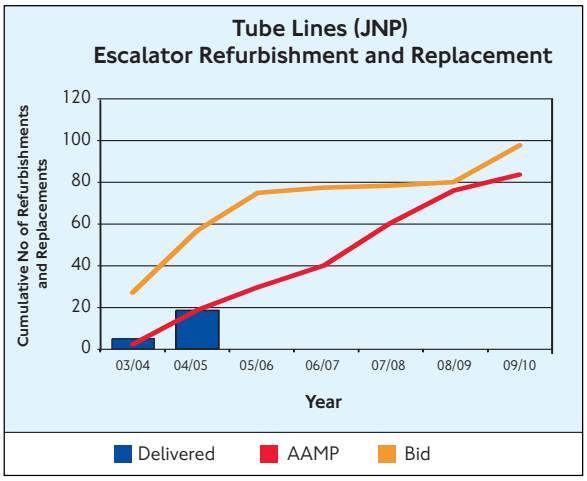
Escalator renewal: Actual against plan and bid, and cost against volume

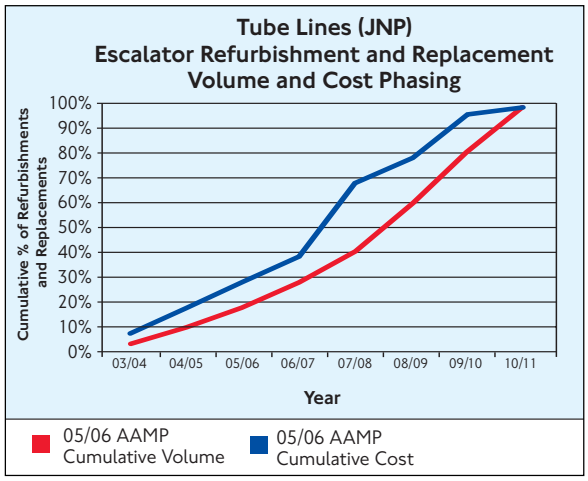












	Cumulative to date	Plan for year 3	Hence total expected at end of year 3	Bid total to end of year 3	Expected as % of bid at end of year 3
Lifts					
Metronet BCV	2	1	3	10	30%
Metronet SSL	0	0	0	2	0%
Tube Lines	0	2	2	28	7%
Total	**2**	**3**	**5**	**40**	**–**
Escalators					
Metronet BCV	19	11	30	23	130%
Metronet SSL	11	7	18	11	164%
Tube Lines	17	12	29	70	41%
Total	**47**	**30**	**77**	**104**	**–**

5.3 Station programme

Under the PPP contracts all[24] stations are to undergo an enhancement project by 2012, with the vast majority being due for completion in the first 7.5 year contract period. The intention behind the station enhancement programme is to bring all stations up to standard in terms of asset condition, decor and customer facilities such as CCTV, help points, audio and visual information and accessibility features (e.g. induction loops, tactile strips and colour contrasts). For some stations a refurbishment is sufficient to achieve modern standards, while for others more work is required in the form of an enhanced refurbishment or a full modernisation. The Infracos risk abatement for late delivery of these projects.[25]

The contractual requirements for the station enhancement programme recognise the need for work to ramp up. Hence the target of 18 stations to be completed by the end of the second year is modest relative to the requirement for 44 stations in year three and a similar number each year thereafter.

Tube Lines delivered seven of nine stations on time, with Tufnell Park and Kennington completed 12 weeks and 16 weeks late, respectively.[26] This is a notable achievement, and whilst LU has raised some concerns regarding the quality and scope of some of the early work, Tube Lines has been willing to entertain modifications to ensure higher quality, which includes LU clarifying preferences, and appears to be learning lessons for future projects.

Metronet BCV was due to complete enhancements at West Ruislip, Roding Valley and Chigwell by 5 March 2005, as was Metronet SSL at Bow Road, Turnham Green, Plaistow, Dagenham Heathway and North Harrow. All of these projects are running late. The latest plans from Metronet show the remainder of the programme running to time. This is hard to believe given current performance and the acceleration required for year three and beyond.

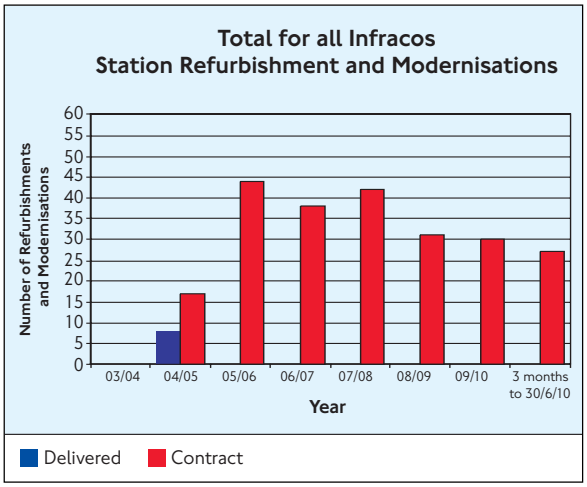
24 Excluding those on the East London line due to the extension project for that line.

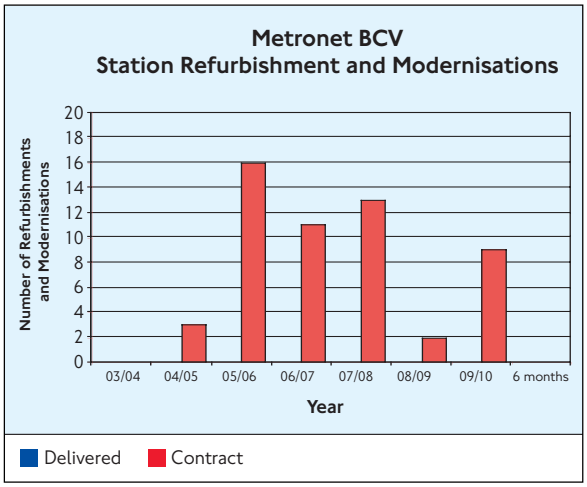
25 For simplicity this section uses the term 'enhancement' to cover all refurbishments, enhanced refurbishments and modernisations. Such projects do not include works to increase capacity or (except in a minority of cases) provide step-free access.

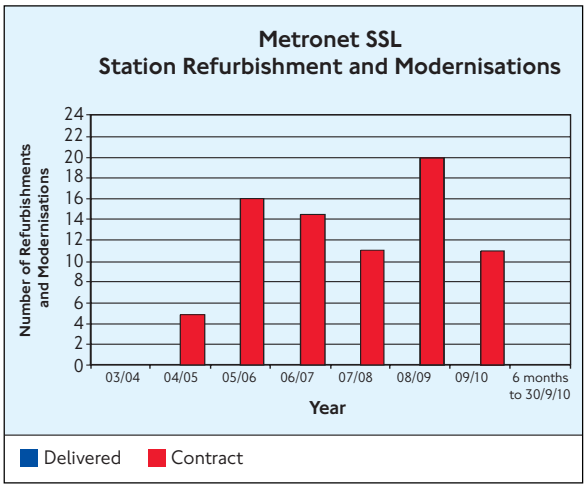
26 The seven stations completed on time are: Burnt Oak, Borough, Kilburn, West Hampstead, Northfields, South Harrow and Arnos Grove. Note that Acton Town, which contractually was also due for completion in 2004/05, has been postponed by agreement between LU and Tube Lines to enable the provision of step-free access to be completed as part of the same project.

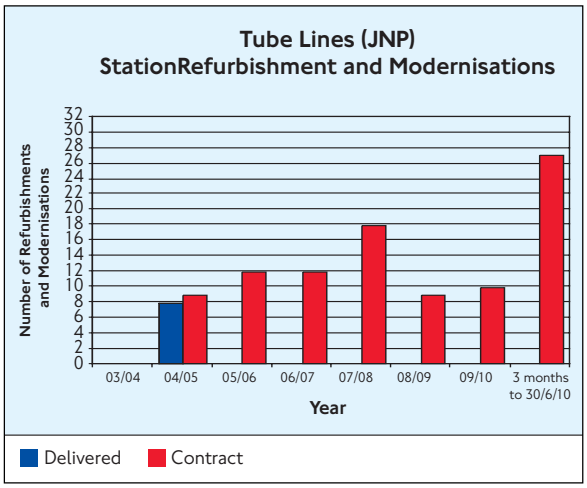
Station enhancements:

Modernisations, refurbishments and enhanced refurbishments in the first 7.5 years
Actual performance against contract









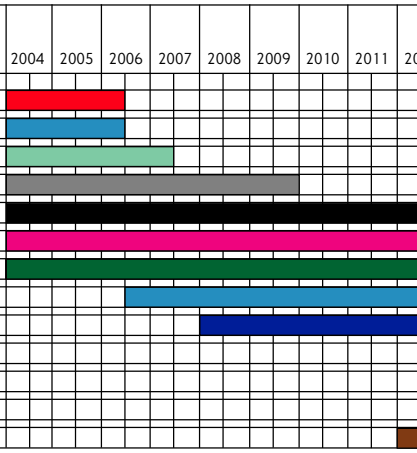

National Rail
Way out
WEST HAMPSTEAD

5.4 Line upgrades and related projects

Under PPP all lines should undergo an upgrade project by 2020, resulting in increased capacity and reduced journey times. The capability targets set out in the PPP contracts specify certain improvements in journey times by particular dates and the PPP contains financial incentives for the Infracos to achieve these targets. Typically the achievement of the journey time capability targets will involve some combination of more trains, faster trains or trains with more capacity, the detail being a matter for the Infraco to determine.

This means that the Infracos should schedule their renewals of key assets such as signalling and rolling stock in an integrated way to deliver a line upgrade. To assist, the contract specifies latest dates for rolling stock refurbishment that accord with the line upgrade dates.

The table below shows a high level programme for the line upgrades including the journey time reduction and estimated increase in capacity.[27]



Line	Contract delivery date	Journey time improvement	Capacity increase
Central	Mar-06	5%	29%
Victoria	Mar-06	5%	
Waterloo & City	Mar-07	12%	30%
Jubilee	Dec-09	22%	48%
Northern	Jan-12	18%	21%
Northern SSL	Mar-12	2%	
Southern SSL	Mar-12	1%	
Victoria	Aug-13	16%	35%
Piccadilly	Oct-14	19%	35%
Northern SSL	Feb-15	17%	19%
Southern SSL	Feb-15	2%	
Southern SSL	Mar-18	13%	19%
Bakerloo	Mar-20	18%	23%

This section reviews Infraco progress to the end of the second year on the upgrades and related projects.

Such an assessment is more complicated for line upgrades than for other single category assets due to the complexity of the projects and the lack of information on Infraco programmes. Since the start of the PPP contracts, LU has been working with the Infracos to obtain information for the Master Projects Database maintained by LU setting out schedule and cost performance information for all projects affecting the Underground. This is a level of information above that set out in the PPP contracts. It has taken some considerable time for the Infracos to provide information, and as we start the third year of the contract the quality of this information is still highly questionable in some areas. Line upgrades are an area where it is particularly important to have visibility and understanding of the Infracos' detailed plans and progress against them, not least because LU is responsible for complementary investment (e.g. additional power supplies) and LU must schedule staff training and transition activities so that the risk of disruption for customers is minimised.

27 Line upgrades and the PPP incentives are discussed further in the 'Capability' section of Chapter 3 above. Note that the PPP contracts do not specify a line upgrade for the East London line, which is subject to a separate extension project. Capacity figures are estimates based on expected train service volumes and are subject to change as the Infracos' plans develop.

Moreover LU and the Infracos must ensure that system interfaces are properly managed through and after the upgrades and that technical issues, e.g. signalling, are properly understood. All these activities are impossible without good quality planning information.

At present the overall picture is that Infracos are meeting the early contractual milestones for the upgrades, however, the levels of work required to deliver the line upgrades is increasing significantly and continued management focus is critical to ensure timely delivery.

Tube Lines

The priority for Tube Lines is the line upgrades on the Jubilee and Northern lines due for 2009 and 2012 respectively. These lines are comparable in that they have new (and relatively similar) rolling stock fleets but urgently require replacement signalling systems; hence Tube Lines is running the upgrades as a single project. A signalling contract for both lines was let to Alcatel in 2003. In the last year Tube Lines has made notable progress with the new signalling demonstrated with a train on the test track at Highgate sidings.

Ahead of the full Jubilee line upgrade, London Underground exercised its right to direct Tube Lines to undertake a project to add a seventh car to the Jubilee line trains, providing a 16% capacity increase per train. In addition to the construction of 59 new cars, the project also involves platform lengthening and equipment moves on various parts of the line.[28] To minimise disruption, the transition will be implemented between Christmas 2005 and New Year. Timely delivery by Tube Lines is therefore essential. So far rolling stock production and testing is on target. This project provides an early and critical test of Tube Lines ability to manage line upgrade renewals.

Metronet

Metronet is working towards the major line upgrades of the Victoria line in 2013 and the first part of the sub-surface upgrade in 2012. Ahead of this, they must deliver smaller interim line upgrades on the Central, Victoria and Waterloo & City lines. Initial contractual milestones for the Victoria line upgrade have been met, and construction of a prototype train is underway. Test trains are expected on the line for test runs from 2007. However, there are some important outstanding issues, for example the location and design of the new Victoria line control room.

28 The build of 59 cars is part of an overall stock increase from 59 six car trains to 63 seven car trains. The tunnel sections of the line are already built to 7-car length making this a relatively easy transition.

An early test for Metronet SSL is its ability to deliver the half-life refurbishment of the District line fleet.[29] This project will update the fleet to modern standards for customer information and ambience, and will introduce multi-purpose areas on the train to better accommodate wheelchairs, pushchairs and luggage. This project, due to be complete by 2009, is now running one year late against Metronet's programme and concerted efforts need to be made to recover.[30]

According to Metronet SSL's plans, the first trains in the new sub-surface fleet are expected to be introduced on the Metropolitan line in 2009, however, this is now understood to be under review. While the overall programme is apparently on target, recent events have raised questions about the ability of Metronet SSL's supplier, Bombardier, to deliver.[31] LU has indicated an interest in exercising its right under the contract to ask for longer trains on parts of the sub-surface railway as part of the line upgrade[32], but has experienced continuing frustration in negotiations which have now dragged on for over nine months. This raises concerns about Metronet's ability to complete the overall project on time.

Successful and timely delivery of the line upgrades is essential if LU is to meet the increases in demand that are forecast as London's population and economy grows over the next decade.

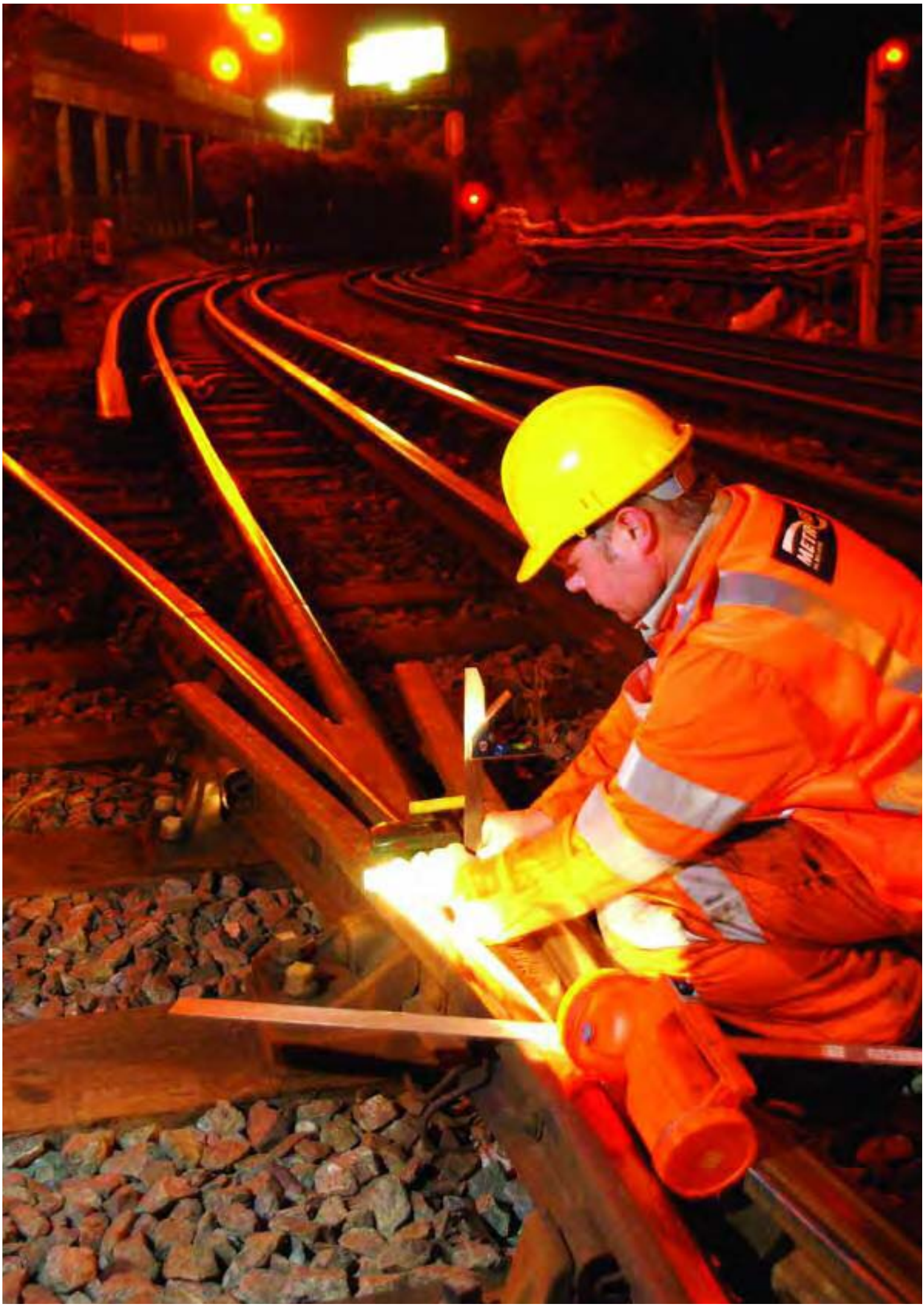
29 This is not strictly a line upgrade project since it is not expected to improve the capability scores but it is illustrative of Metronet's ability to handle rolling stock projects which are a key component of the eventual sub-surface line upgrade.

30 Despite this slippage, Metronet still believe they can complete the D-Stock refurbishment programme by the contract date.

31 Bombardier is both a shareholder in Metronet and also the sub-contractor for rolling stock.

32 The project would see new 7-car trains replacing the current 6-car trains on the Hammersmith & City line, Circle line and Wimbledon-Edgware Road District line services.

6 Asset management



6. Asset management

Last year's PPP report said that future reports would benefit from development of an asset register and investment programme reporting system across LU and the three Infracos. The last year has not been without significant progress in this area, but we are still not seeing the desired level or quality of information.

These information systems are important, firstly to assure us that the Infracos understand their asset base and the intervention needed to maintain it safely, and secondly to demonstrate that Metronet and Tube Lines have coherent plans and organisational systems to manage not only the current level of work, but also the increasing volume of renewals to come.

One of the principles behind the PPP concept was that the private sector infrastructure companies would be able to apply whole life asset management, planning maintenance and renewal activity over the whole asset life (which might be 30-40 years for some railway assets) so that the level of renewal activity is steady and the whole life costs are optimised. The outcome of this should be improved service performance at lower cost. In effect, PPP was designed with the intention that the Infracos make investment decisions as if they were the owners of the assets.

Efficient and economic asset management imposes a number of requirements on the Infracos, including the following:

- A whole-life cost approach: make maintenance and renewal decisions to optimise over the life of the asset, rather than these decisions being made based on the length of the contract.
- Overall good condition: provide a strategy and plan for the renewal and management of LU's assets to a state of overall good condition. Asset condition benchmarks and residual life requirements set parameters for asset condition at various points in the contract.
- Asset knowledge: a requirement to fully identify, catalogue and assess the condition of all assets under their care. Infracos are required to develop an understanding of the link between asset condition and performance and to demonstrate that understanding in the management of the assets.
- Safety and service loss: the Infracos must minimise the risks of service loss and safety incidents through their asset management approach.

This chapter examines the various components of asset management in the PPP.

6.1 Asset registers

All three Infracos are developing asset information systems to meet their essential contractual requirement to provide LU with a complete asset register showing the physical assets present, together with information such as their value, condition and ownership status. This information should be the foundation of Infracos' wider asset management and work planning systems.

Tube Lines met its contractual requirement of submitting an asset register by December 31, 2004. It is essential that the system is now used and kept up to date with information of sufficient quality. Metronet's contracts require it to make 'best endeavours' to complete the asset register by 31 March 2005. This was not achieved. However, we anticipate Metronet will deliver the completed asset register in advance of the latest contractual date of 31 March 2007.

6.2 Asset Management Strategies and Plans

The contract requires the Infracos to produce certain documents setting out their approach to whole life asset management and planning for LU's approval. Each Infraco's Asset Management Strategy (AMS) should set out the high-level regime by which economic and efficient whole-life asset management will be achieved. Additionally, the Annual Asset Management Plan (AAMP) must report on progress in the last year and outline maintenance and renewal plans for the next nine years. The AAMP should also contain detailed cost information to show evidence that whole life asset management is being implemented.

Asset Management Strategies (AMS)

As reported last year, the first round of AMS documents was disappointing, providing a re-statement of existing commitments but no real insight on the approach to achieve them. LU required all three Infracos to undertake improvements and deliver updated AMS documents. At the end of this second year, there are signs that Tube Lines is beginning to adopt and implement a whole life asset management approach as the basis of its planning. The Tube Lines AMS was recently approved. Metronet SSL has submitted a greatly improved AMS, which may also be suitable for approval following discussion in the next few months. Metronet BCV has resubmitted its AMS and this is currently under review.

Annual Asset Management Plans (AAMPs)

Unsurprisingly, relative performance on the AAMPs mirrors performance on the AMS documents. The AAMPs submitted in the first year of the contract failed to meet the contractual requirements. LU granted only conditional approval on parts of the plans with the expectation that development activity would be undertaken.

The AAMPs submitted in the second year, while a step forward from prior submissions, still do not meet the requirements of the PPP contract in a number of areas. Most notably, the Metronet AAMPs fail to provide a comprehensive and robust nine-year plan and cost information that can be related back to the Metronet bids and which evidences implementation of whole life asset management. This said, both Metronet Infracos have further to go to satisfy the PPP requirements for AAMPs. Tube Lines has made a more marked improvement in the last year, with only a few issues outstanding.

Without AAMPs that LU can approve, we cannot be assured that the Infracos are delivering effective whole life asset planning. In essence we cannot be assured that the PPP is working.

6.3 Review meetings

The contracts oblige the Infracos to hold monthly Asset Performance Review Meetings (APRMs) to facilitate active monitoring of performance against the Annual Asset Management Plans. These meetings are themed by asset category and involve the relevant parties from LU and the Infracos.

Last year's PPP report expressed our frustration with the effectiveness of these meetings. It has taken almost a year to bring about improvement, partly because the AAMPs have not provided anything adequate for the meetings to use as a yardstick for performance. However, with the start of the new financial year, the APRMs are now adopting a more systematic review of Infraco obligations and delivery in their maintenance and renewal work

6.4 Assurance regime

Assurance is a term much used but poorly understood in the PPP environment. Essentially assurance is about the Infraco providing LU with sufficient information for us to be comfortable that the Infraco is capable of delivering its obligations in line with LU standards and requirements. Each Infraco must submit an assurance regime for approval so that LU can be confident that the Infracos have suitable management systems in place to deliver their maintenance obligations and renewal programmes.

Having approved Tube Lines' Assurance Regime in February 2004, following a number of iterations LU was finally able to approve Metronet's in December 2004.[33] This is an important development in the working relationships between LU and the Infracos.

33 The approvals for Metronet BCV and Metronet SSL were subject to continuing work on a small number of outstanding issues.

7 Financial outcomes


UNDERGROUND

7. Financial outcomes

The PPP, through the Infracos, introduces approximately £5 billion of long-term private finance which London Underground repays through the Infrastructure Service Charge (ISC). The ISC consists of a base payment adjusted by performance-related bonuses and abatement payments. The overall cost to London Underground of the PPP from the start of the contract to the end of the second year is £2.3bn. Since the start of the contracts the Infracos have spent £1.4bn on capital works. This chapter summarises the financial performance of the PPP and what this means for Metronet and Tube Lines, subject to the limitations of the information available.

7.1 Financial information

As mentioned in the previous chapter, last year's PPP report stressed the need to develop common investment reporting systems between the Infracos and London Underground. Progress has been made in the last year to implement the Master Projects Database, which should provide project scheduling and cost information. Cost information is also sought in the Annual Asset Management Plans, and has started to be provided, however the quality and validity of this data is yet to be proven.

In order to effectively discharge our statutory obligations, LU requires information from the Infracos to fully explain the variance in their actual and projected expenditure against the levels set at the start of the contract. In particular, we require a clear explanation of the utilisation of risk and contingency funds. Further information is also required for us to understand the management and status of the Infracos' supply chains; for example, the information provided by Metronet does not yet adequately explain the difference between the milestone payments made and the value of work done by its key sub-contractors.

An illustration of the need for clear financial information within the confines of the contract is demonstrated by looking at the financial information that is publicly available. Work on reconciling all these differences is being progressed with Tube Lines, and although Metronet has promised to start a similar process, tangible and visible progress has yet to be achieved. During the last year the Infracos published their first annual reports and their accounts for year one of the contract.

The results are interesting, but the decision of the two companies to adopt different accounting policies makes the results meaningless as a basis for comparison.[34] Continuing commitment is required from Metronet and Tube Lines to enable LU to assess the Infracos' financial performance at the levels required. These results are summarised in the following table.

34 Metronet has adopted application note F to FRS5, whereas Tube Lines follows SSAP 9 resulting in diverging treatment of PPP investment. These choices, while legitimate and known at bid, preclude the use of the published financial information for any meaningful comparison.

Reported profits for the year ended 31 March 2004, £m	Metronet BCV	Metronet SSL	Tube Lines
Turnover	296	320	597
EBITDA[35]	38	51	75
	12.9%	15.8%	12.6%

7.2 Infrastructure Service Charge

Tube Lines and Metronet BCV ended the first year of the PPP contract with net abatements, while Metronet SSL achieved a net bonus. Looking at the contract from signature to the end of the second year shows the same story: Metronet SSL has earned cumulative net bonuses of £14.9m while Metronet BCV and Tube Lines have been abated £9.6m and £24.2m respectively.

The baseline ISC represents the contractually agreed fee payable to the Infracos. It increases according to an agreed profile and is indexed against inflation.

The performance adjustments reflect the achievements against the benchmarks for contract performance measures as described in chapter 3.

Cumulative to 31 March 2005 *£m*	Metronet BCV	Metronet SSL	Tube Lines	Total
Baseline ISC[36]	**621.2**	**702.0**	**918.6**	**2,241.8**
Capability	0.1	5.2	1.1	6.4
Availability	(9.0)	12.1	(17.5)	(14.4)
Ambience	1.7	0.1	(0.7)	1.1
Service Points	(2.4)	(2.5)	(7.1)	(12.0)
Total Bonus/Abatement	**(9.6)**	**14.9**	**(24.2)**	**(18.9**
Usage	(2.4)	–	(0.3)	(2.7)
Performance adjusted ISC[37]	**609.2**	**716.9**	**894.1**	**2,220.2**

Overall the payments reflect improving performance. The abatements incurred by Metronet BCV and Tube Lines are lower than in the first year. Metronet SSL received more than double the bonus it received in the first year.

35 EBITDA (earnings before interest, taxes, depreciation, and amortisation).

36 The Baseline ISC includes a Working Capital Creditor value of £48.2m, £64.9m and £61.1m for Metronet BCV, Metronet SSL and Tube Lines respectively.

37 Other amounts are paid in addition to this relating to 'transition' projects which were on site at the time of contract signature where the Infraco is generally reimbursed according to the value of work done.

Comparing the actual bonus and abatement totals to the amounts predicted in Metronet and Tube Lines' bids provides an insight into how well the Infracos are performing against their own expectations. The table below shows that Metronet SSL is almost performing to the bid expectations, whilst Metronet BCV has attracted significantly more abatements than bid expectations.

Tube Lines expected to be in abatement at the end of year two, but only by approximately 70% of actual abatements levied to date. This reinforces the conclusions drawn earlier in this report that the Infracos are making slow progress against their bids.

Net bonus/(abatement) Cumulative to 31 March 2005[38] *£m*	**Metronet BCV**	**Metronet SSL**	**Tube Lines**	**Total**
Actual net bonus/(abatement)	(9.6)	14.9	(24.2)	(18.9)
Infraco expectation at transfer	(0.1)	15.3	(17.0)	1.8
Above/(below) Infraco expectation	**(9.5)**	**(0.4)**	**(7.2)**	**(17.1)**

7.3 Infraco investment

The same approach can be used to assess investment delivered against the expectations set out in the bids, as set out below.

Cumulative capital investment to 31 March 2005[39] *£m*	**Metronet BCV**	**Metronet SSL**	**Tube Lines**[40]	**Total**
Track and infrastructure	131.2	86.5	102.8	320.5
Trains, depots and signalling	180.4	197.0	258.9	636.3
Stations, lifts and escalators	123.1	107.4	219.1	449.6
Total cumulative investment	**434.7**	**390.9**	**580.8**	**1,406.4**
Infraco expectation at transfer	472.0	451.5	569.1	1,492.6
Above/(below) Infraco expectation	**(37.3)**	**(60.6)**	**11.7**	**(86.2)**

38 Based on capability, availability, ambience and service points.

39 Capital Investment figures include project spend which has not been capitalised under FRS 15. The figures, provided by the Infracos in April 2005, are cumulative since contract signature and were also used as the basis for preparing the LU Financial Accounts for 2004/05.

40 Tube Lines stations figure excludes £54m relating to Wembley Park works, which is a Major Enhancement Agreement project funded by LU outside the core PPP contract.

Investment by Metronet falls well short of that promised in the bid for this stage of the contract. This may support the picture of Metronet falling behind schedule, provided by examples such as the late delivery of the first batch of station enhancements and the delay on the District line fleet refurbishment. By contrast, Tube Lines has recorded a greater total of investment than it expected at this stage of the contract (though this partly represents differences in the classification of project management costs).

While these figures are interesting they do not enable conclusive comment on the relationship between investment made and renewals delivered, particularly because the picture is blurred by the inclusion of significant payments to the Infracos' supply chain, which may not represent actual work done. This reinforces the need for the Infracos to provide the programme and cost information required.

7.4 Infraco funding and supplier relationships

With most of the investment due to be delivered over the first half of the contract life, the Infracos have put in place funding arrangements to supplement the ISC during this time. These arrangements involve both debt and equity financing.

At the end of the second year it is estimated that the majority of funds required by both Metronet and Tube Lines have come from the Infrastructure Service Charge, i.e. from the public sector, with around 30-40% of funds provided through debt arrangements and only a small proportion from shareholder equity.

During the first 7.5 year contract period, Metronet shareholders are committed to provide a total of £150 million in equity and a further £200 million in loans. Contributions are made progressively over the contract period. Metronet shareholders are estimated to have received £51m in 'success fees' resulting from contract award. No dividends have been paid as yet.

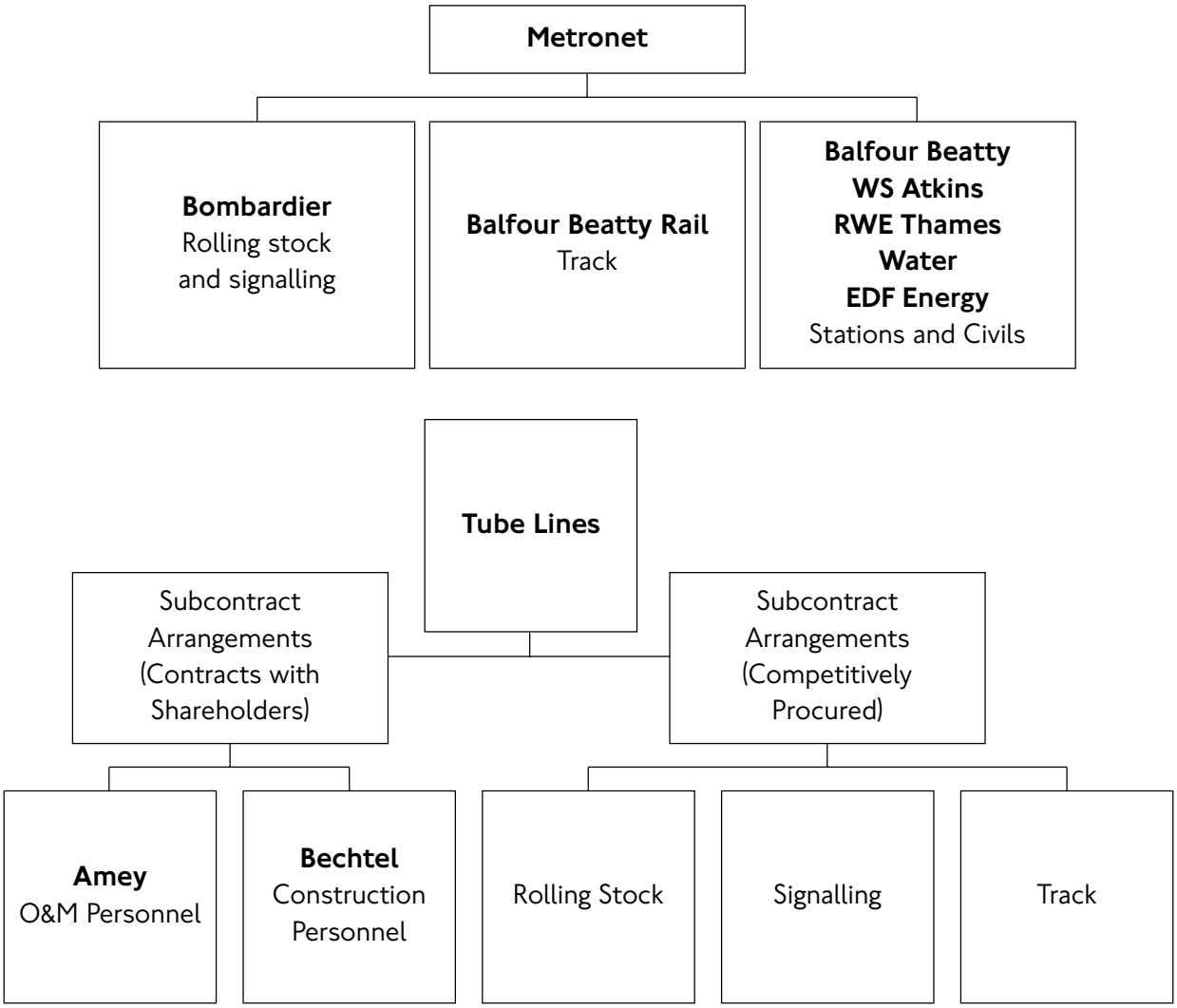
Tube Lines shareholders are estimated to have received £39m in 'success fees', retained on their books as equity. In total the Tube Lines shareholders have provided £45m in equity (£6 million net of success fee) plus £90 million in loans. These amounts are underpinned by equity bridging loans. Tube Lines shareholders have also received dividends of £7.1m and a further special distribution of £20.2m relating to refinancing of the Tube Lines capital structure. Refinancing also resulted in financial benefits to London Underground of £42m to be reinvested in the capital programme.

In addition to receiving dividends and interest as shareholders, consortia members have supply relationships with the Infracos. The arrangement differs between Metronet and Tube Lines. In the Metronet case, the shareholders are contracted to provide the majority of planned investment and maintenance. Payments made to Metronet shareholders do not necessarily relate to actual work done as some are based on contractual payment dates and not delivery. For Metronet, such payments are estimated at over £500m just for the 18 months to September 2004.[41]

41 Estimates exclude the success fees paid at transfer.

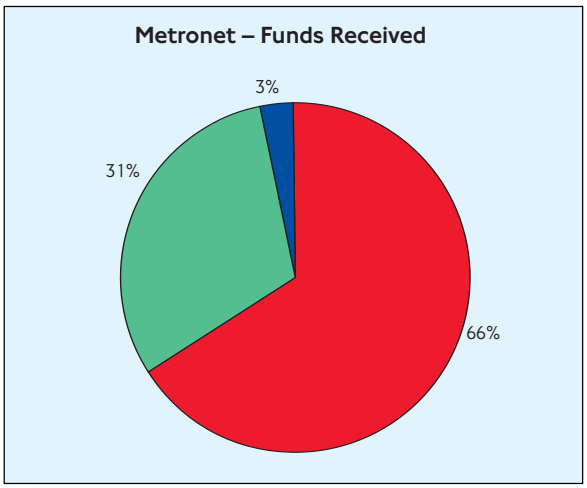
The Tube Lines structure differs, with the majority of investment sub-contracted on the basis of open competitive tender. The shareholders' role focuses on staff secondment arrangements to bring in specific expertise. To 31 March 2005, these arrangements are estimated to have earned the Tube Lines shareholders £135m.[42]

Illustration of shareholder involvement in supply chains

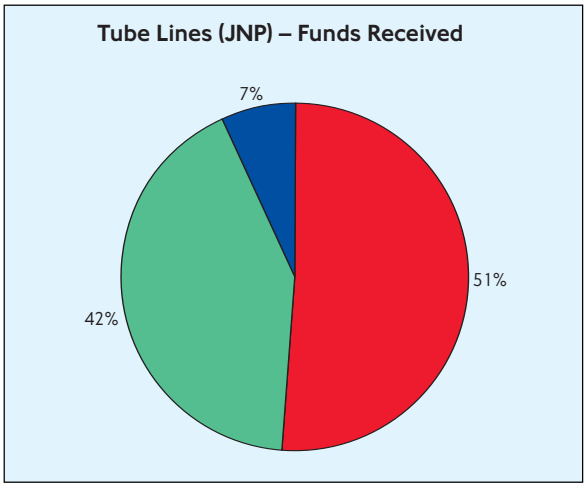


42 Figures to 31 March 2005 will only be available when Tube Lines publish their 2005 Annual Report and Accounts.

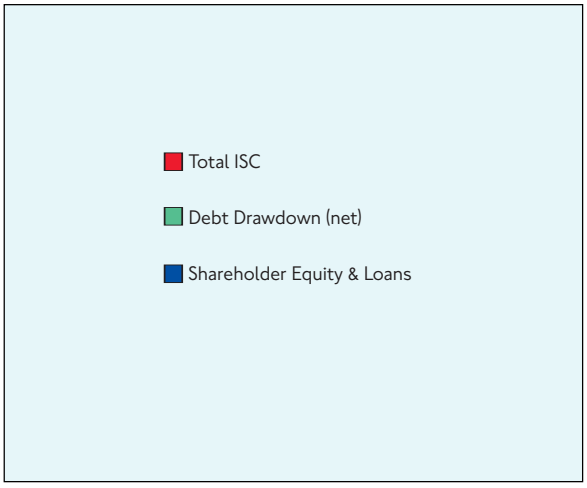
Funds Received



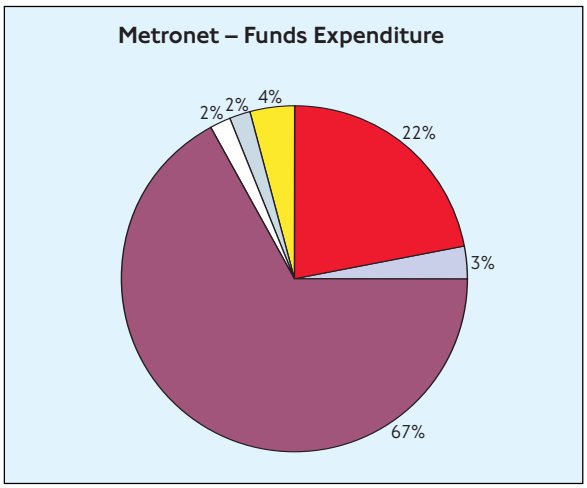
Total: £2,033.3m



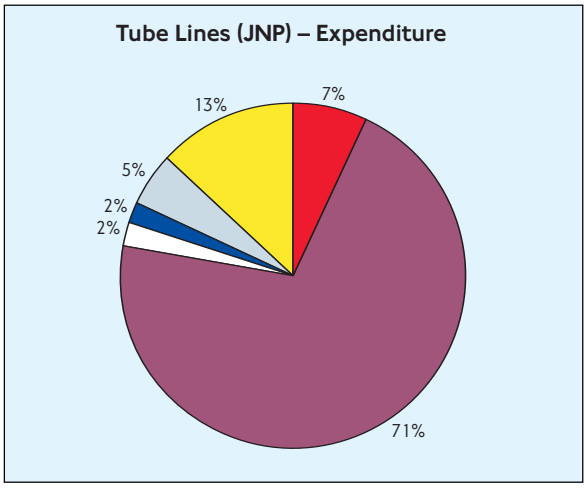
Total: £1,809.0m



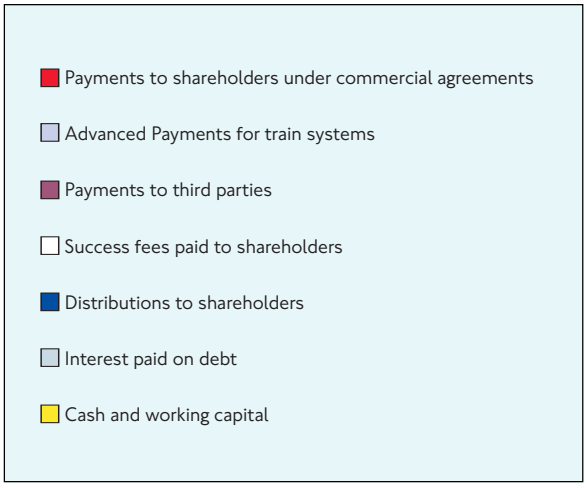
Funds Expenditure



Total: £1,960.5m



Total: £1,566.7m



Note: Full, audited information is not yet available for the year ended 31 March 2005. These charts therefore present an estimate of the cumulative funding and expenditure flows for Metronet and Tube Lines from the start of the contracts to 31 March 2005.

7.5 Conclusions

Our analysis of the financial information, to the extent it is possible given the information available, broadly confirms the trends observed by looking at the Infracos' performance. Overall, contractual performance has improved on year one and the total net abatement is lower, but where performance has failed to meet expectations in the bid, so has Infraco reward.

Metronet's lower level of investment recorded concurs with the observations about the delivery of renewals. In the first year both Tube Lines and Metronet recorded profits[43] and shareholders in both companies have received income from the Infracos. Across the PPP however, it remains unclear whether payments to sub-contractors, and for secondment arrangements to the same companies that own stakes in the Infracos, truly reflect the value of the maintenance and investment delivered.

43 In terms of earnings before interest, taxes, depreciation and amortisation.

8 Safety

8. Safety

Providing a safe service for customers and a safe environment for all those who work on the Underground remains the top priority for TfL, LU and the Infracos. LU as the operator and infrastructure controller, remains responsible for the safety of the railway at all times.

LU's safety management regime is described in the statutory Safety Case, which is independently assessed and approved by the Health and Safety Executive (HSE).[44] Each Infraco is contractually obliged to produce and comply with its own Safety Case, which must be approved by LU. The Infracos are also obliged to co-operate with LU on all general health and safety matters.

LU monitors the Infracos' safety performance and audits their compliance with their contractual Safety Cases and with LU standards. An annual Safety Improvement Programme is agreed by all parties and monitored jointly by senior managers meeting on a monthly basis. All safety improvement activities are specified and tracked to completion on the LU Safety Action Tracking System with a named accountable manager, deliverables and progress status for every action. Overall the last year saw an improvement in the proportion of actions completed on time compared with 2003/04.

In the last year, all three Infracos achieved slightly better levels of compliance with the contractual Safety Case requirements than in 2003/04. The wide range of system safety performance indicators show stable or improving performance year on year, which in the context of an increasing volume of engineering work, is a significant achievement.

The only exception is the 30% increase in instances of Signals Passed At Danger (SPADs) resulting from signal asset failures. SPADs were highlighted as an area for improvement in last year's report, and LU has made major strides over the last year in reducing the number of SPADs attributable to our staff. However, this has been offset by this increase in technical SPADs attributable to Infracos.[45] The rise appears to be mainly due to problems with certain signal lamps and water affecting signalling circuits. While safety protection systems fitted throughout the Underground mean that the risk of a collision following a SPAD incident is extremely low, this trend in technical SPADs is nonetheless unacceptable.

The long trend of zero employee and contractor fatalities continued through 2004/05. The overall number of Lost Time Injuries remains low and significantly better than other comparable organisations, and initiatives have been put in place to achieve further improvement.

---

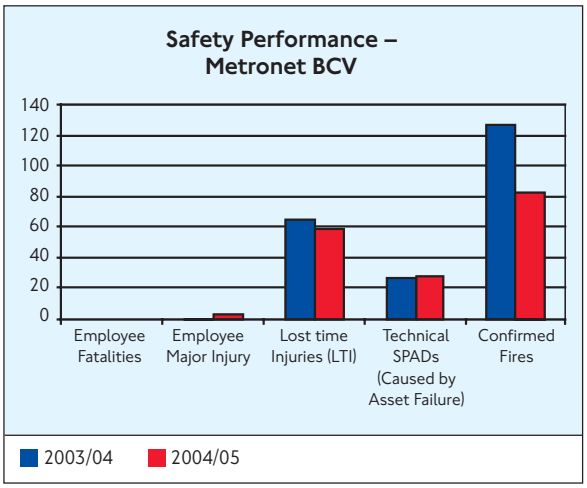
44 Recent legislation will change the relationship between LU and its statutory safety regulator. However, these changes had no impact in 2004/05 and have no significant impact on the relationship between LU and the Infracos.

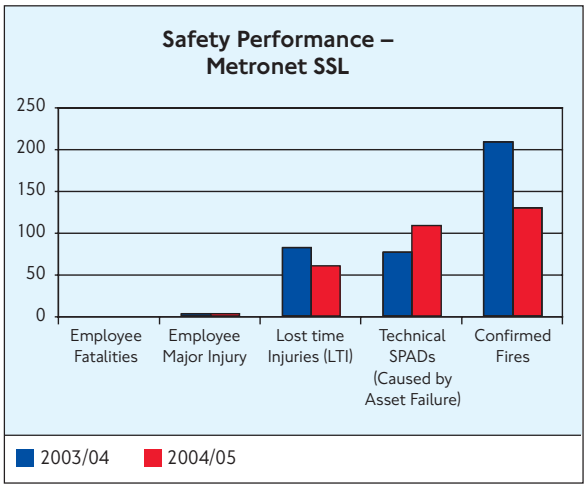
45 Overall SPADs decreased by 2.8% compared to 2003/04. Category A SPADs (staff attributable) fell by 10% but category B (Infraco-attributable) rose by 30%.

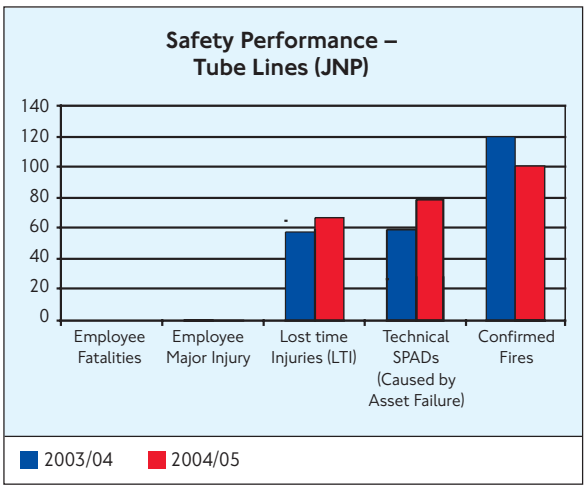
Throughout 2004/05, LU, Metronet and Tube Lines have continued to implement the improvements called for in the formal investigation reports into safety incidents including the separate derailment incidents at Chancery Lane, Hammersmith and Camden Town in 2003.[46]

The most significant single safety incident of the last year was the derailment on 11 May 2004 on the Central line at White City. There were no customer or staff injuries in this incident, and services were restored the following day. The cause, unrelated to the Chancery Lane incident a year before, was thoroughly investigated and ten recommendations were made in the Formal Investigation Report. These recommendations have since been implemented to minimise the chances of a recurrence. Despite these high profile events, the level of in-service derailments in 2004/05 was lower than the ten year average, and the seven year downward trend for all types of derailments continues.

Safety Key Performance Indicators (SKPIs) are used to monitor safety performance. These show there are relatively few incidents overall and generally favourable trends, with the exception of technical SPADs.[47]







46 The Chancery Lane derailment occurred in January 2003, before Metronet took over the BCV contract. The Hammersmith and Camden Town events occurred in October 2003. Formal investigation reports for these incidents, and the White City derailment, have been made publicly available on the TfL website (www.tfl.gov.uk).

47 The LU figures for technical SPADs against the Infracos are based on line on which signals are located and not Infraco ownership.

9 Managing the Investment Programme

9. Managing the Investment Programme

The PPP is a vital and major part of LU's overall investment programme, but there are now other parts to it. During the past year TfL has published its first 5-year investment programme which includes over £5bn of investment by 2009/10 for LU. Whilst a proportion of this comes through the PPP, and further investment comes via the three major private finance initiative (PFI) contracts, there is in addition a substantial amount of new investment funded from TfL's prudential borrowing agreement.

Managing the LU Investment Programme therefore is about more than just managing the PPP, although it is inextricably bound up in the complexity of the PPP. This chapter briefly discusses some of the current issues including the interface between LU's PPP and PFI contracts and alternative approaches to deliver the investment programme.

9.1 Managing the PFIs and their interface with PPP

As described above, LU is also party to three major PFI contracts covering power, communications and ticketing.[48] The PFIs were set up to modernise and maintain these critical network systems prior to PPP and hence the contracts were agreed without provision to ease the integration of effort and resources between LU and the Infracos. This means that the challenge for LU is, not only to ensure delivery of the core PFI deliverables, but also to manage the interfaces between the Infracos and the PFI contractors (and on top of this some 30 other inter-company relationships).

The new build phase of the Prestige contract, to renew and maintain LU's ticketing and deliver the Oyster card system, is largely complete. Oyster offers faster, cheaper and more convenient journeys and the task for the coming year is to deliver further functionality and promote the customer benefits of the product.

The Power contract is also largely complete in terms of the original objectives of replacing internal generation with electricity from the national grid. However, significant further power investment is required to support the PPP line upgrades as new trains generally require more power meaning that LU's power system must also be upgraded. Accordingly, we are investing in new substations and other power assets. However, this work is hampered by the lack of clear and consistent information from the Infracos about their line upgrade programmes.

The Connect PFI contract is intended to completely replace LU's radio and transmission systems. In the last year both the Northern and Piccadilly lines have suffered severe service disruptions caused by the failure of life expired train radio systems. It is therefore crucial that the new system is delivered. This was originally due in October 2003. The programme is now running over budget and four years late. Despite progress in the last year which saw enabling works (to provide space and power for the new equipment) reach 82% of completion and the radio system reach 60% of completion, performance by the contractor is not good enough and there have been changes in personnel and approach to expedite delivery.

48 Details of PFI contractors and their consortium members:
Prestige: TranSys (EDS International Limited; Cubic (UK) Ltd; Fujitsu (International Computers Ltd); WS Atkins Consultants Ltd).
Power: EDF Energy Powerlink Ltd (Seeboard plc, ABB and BICC).
Connect: CityLink (Thales, Fluor, Motorola, HSBC and Laing Investments).

Connect also interfaces heavily with the PPP contracts. In addition to the more obvious relationships, such as jointly designing radio systems as part of the line upgrades, the interfaces include temporary and permanent movement of equipment to facilitate PPP works. Again, accurate programme information from the Infracos through the Master Projects Database is essential if these interfaces are to be managed efficiently.

9.2 Investment outside PPP and PFI

Neither the core PPP nor the PFI contracts deliver certain types of investment. For example, stations such as Victoria, King's Cross, Bank and Tottenham Court Road suffer heavy congestion at particular times. This is not addressed in the PPP contracts. Hence, LU is investing over £600m over the next five years on station capacity and congestion relief works. A further £200m is being invested in providing step-free access at stations as we strive to achieve our target of 25% of the network by 2010.

The investment programme also includes the Piccadilly line extension to Heathrow Terminal 5, extending the Metropolitan line to Watford Junction (subject to Government support) and a number of other smaller programmes.

9.3 Using alternative providers to deliver the Investment Programme

In seeking to deliver this unprecedented level of investment LU must consider the appropriate procurement channels. In particular, we want the option to contract works to parties other than the Infracos – partly to ensure competitiveness in pricing, and partly because the Infracos have yet to demonstrate their ability to handle existing workload, let alone the additional projects in the Investment Programme.

To facilitate competitive tendering, over the last year we have awarded Framework Agreements to three alternative providers: Birse Metro, Taylor Woodrow and Gleeson MCL.

The Walthamstow Central congestion relief project is the first in the Investment Programme to be awarded to an alternative provider. The contract was awarded to Birse, achieving a significant saving compared to the price submitted by the Infraco responsible for this station, Metronet BCV.

9.4 'Blockade' style closures as a means to manage the work

Given the volume of works in the Investment Programme and the performance of the Infracos to date, there has been much public debate about the merits of blockade-style extended closures of parts of a line to undertake engineering work. The PPP contracts were designed to avoid major closures in order to protect the commuter population and we expect the Infracos to be able to comply with this structure. However, our overriding concern is the delivery of benefits to customers and, therefore, we are willing to investigate this issue with the Infracos.

At present we are considering a proposal by Metronet BCV for a five-month closure of the Waterloo & City line for the line upgrade works as an alternative to a plan requiring three twenty day closures and a year and a half of weekend closures. We are also reviewing a proposal from Tube Lines to close several sections of the Northern line in order to accelerate renewal and reliability improvement works.

The criteria we have established for assessing proposed blockades are:

- The Infraco must first demonstrate the resource capacity to deliver the work that is planned were the extended closure approved
- We must establish that we have the ability to minimise customer disruption through other transportation alternatives such as other LU services, scheduled bus or rail services or dedicated replacement services.
- The savings to an Infraco due to the efficiency of working in a blockade are re-invested in the Underground in the form of increased or accelerated renewal and upgrade works.

The Infracos remain liable for delivering maintenance and renewals under the present access arrangements as promised in their bids.

9.5 Requests to the PPP Arbiter for Guidance/Direction

The Greater London Authority Act 1999 established the position of the PPP Agreement Arbiter. The Arbiter's principal responsibility is to support London Underground and the Infracos in reaching a fair agreement when the PPP contracts come up for Periodic Review every 7.5 years. However, the Arbiter has a continuing role throughout the PPP contracts; a particularly important role being the provision of guidance or direction.[49]

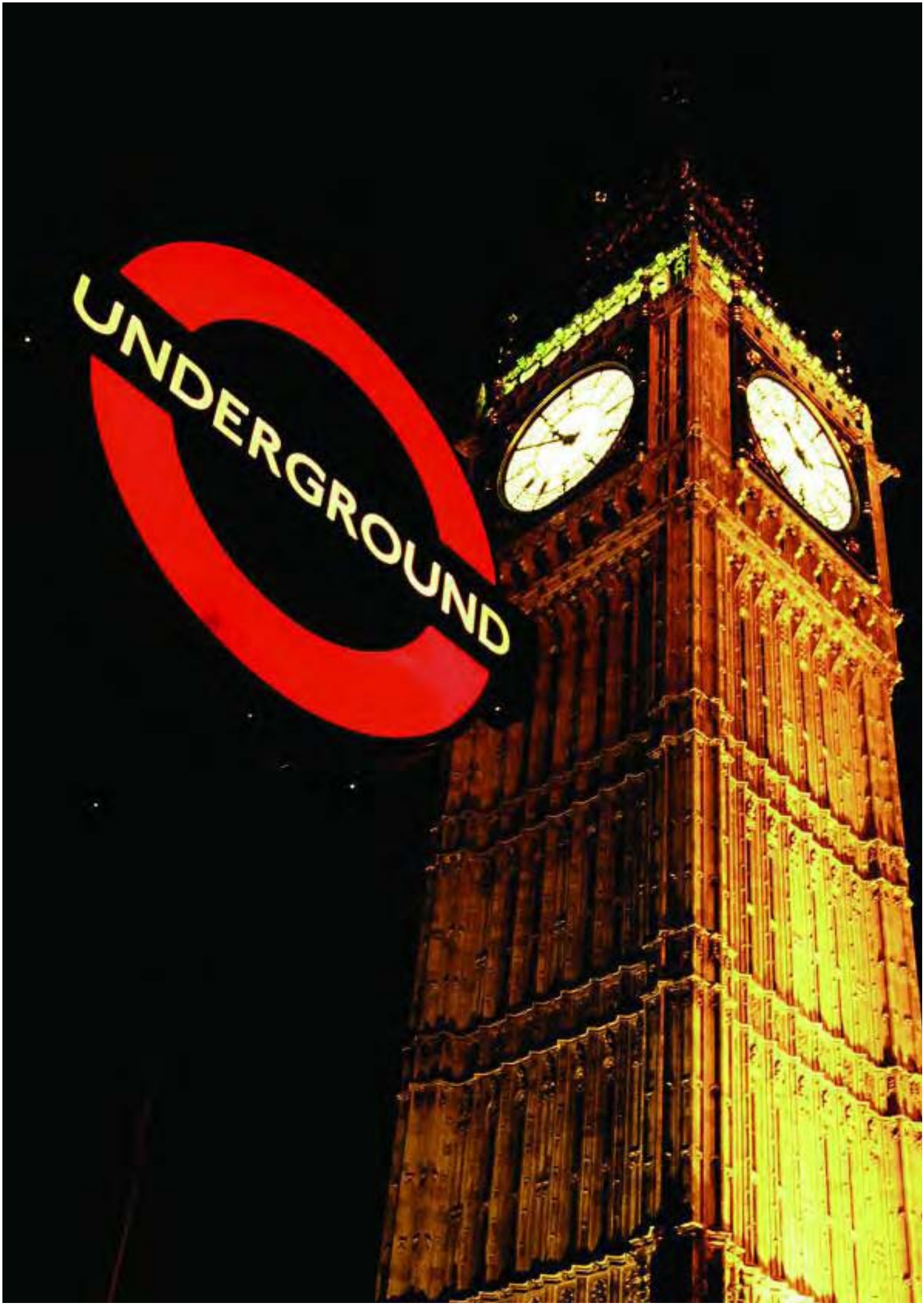
The circumstances when requests can be made to the Arbiter for direction or guidance are described in the PPP contracts. The provisions are slightly different for Tube Lines and Metronet. In 2004/05 no such requests were made by LU or any of the Infracos.

At the end of the second year, either Metronet or LU could have asked the Arbiter for guidance as to whether Metronet had or had not performed its activities to date in an overall efficient and economic manner and in accordance with good Industry Practice. (This is known as the 'Metronet Annual Report'). Additionally both Metronet and Tube Lines could have asked the Arbiter to determine various questions as to the amount of costs/revenues legitimately incurred or to be incurred by the Infracos.

We consider that the most important issue for the present is to focus, with the Infracos and the Arbiter, on ensuring that robust information is available to support analysis required to determine the questions asked of the Arbiter. Hence LU has not, to date, initiated any requests, particularly in the context of the Metronet Annual Report. However, the progress being made on information provision is being kept under continuous review and if not satisfactory, LUL may still make a request for guidance from the Arbiter with respect to Metronet's 2004/05 costs/revenues or on related matters.

49 A comprehensive description of the PPP Arbiter's role can be found on the Arbiter's website, www.ppparbiter.org.uk

10 London Underground overall performance


UNDERGROUND

10. London Underground overall performance

PPP performance is crucial to London Underground's performance. If the contracts fail to deliver then ultimately LU will fail to deliver, but the converse isn't necessarily true; PPP delivery is insufficient for LU to meet its customers' needs and stakeholders' expectations. To achieve our goal of world class performance we must provide a service that is reliable, welcoming, safe and secure. It remains essential that LU as the operating company turns available assets into effective customer service, and delivers on all the vital investment that sits outside the core PPP contracts. This chapter provides an overall perspective on LU performance.

In 2004/05 an all time record 976 million journeys were made on the Underground. We ran the highest volume of service in our history, and met or beat all of our government targets, as shown below.

Performance measure	Target	Actual	Status
Overall Customer Satisfaction (score 0-100)	76	78	Achieved
Excess Journey Time (minutes, unweighted)	3.27	3.23	Achieved
Excess Train Time (minutes, unweighted)	1.97	1.80	Achieved
Service volumes (Million kms operated)	68.9	69.4	Achieved
Schedule not operated (%)	6.0	4.7	Achieved
Peak trains cancelled due to staff shortage (%)	0.6	0.1	Achieved
PPP Lost customer hours (millions)	17.22	14.76*	Achieved

** Figure subject to revision following resolution of abeyance LCH in the last quarter, though the final figure will still be significantly better than target.*

10.1 Reliability and journey time

Despite a record level of customer journeys train service reliability continued to improve over the last year. The service volume operated increased by 2.5% to 69.4 million kilometres. This is a new high, reflecting increases in the schedule and improved reliability with only 4.7% of the schedule lost to delays and incidents.

The Infracos' improvements in asset availability are part of the explanation, but not the whole story. With the Line General Manager structure now embedded in the organisation the focus on reliability is beginning to take hold. This is manifest in the very low level of peak train cancellations for train operator non-availability, and the 10% reduction in staff-attributable signals passed at danger (SPADs).

A further contributor to improved reliability has been the general absence of industrial action over the last year with only one day of service lost to industrial action. We are pleased to have agreed a two-year pay agreement with the Unions that will see improved productivity while achieving the 35-hour week our staff have long sought.

During the year improved service schedules on a number of lines contributed over 1.4 million additional kilometres to the schedule. These included off peak enhancements on the Central, Victoria and Northern lines, and a small peak increase on the Metropolitan line. This offset the 1.2 million kilometres of service reductions required to permit the increase in engineering work.

However, continued effort will be required to sustain these achievements in the coming years particularly with customer journeys set to increase further. Already we are seeing the effects of this with journey times through our busiest stations increasing. In the short term this can be mitigated through increased use of Oyster, greater reliability for lifts and escalators, and a focus on achieving regularity in the train service. In the longer term station congestion works will be delivered as part of the investment programme.

In April last year the new entrance at Canary Wharf station was opened providing improved service to the businesses in that area. Considerable progress has been made at Wembley Park, where the capacity works will be complete in time for the opening of the new National Stadium, and the Government's decision to authorise the next stage of the King's Cross St. Pancras project will enable this station to cope with the increased volumes expected when the mainline international station opens.

10.2 Information

In the last year there has been a focus on improving the quality and quantity of service performance information available to staff and customers. Until the line upgrades are delivered, parts of the Underground will continue to rely on old manual signal boxes more akin to a 1960s rural railway than a modern 21st century metro. By automating the recording of train movement information at these signal boxes we are able to provide staff with an accurate picture of the train service so that they can make better decisions about how to manage the service and improve the information made available to customers.

10.3 Welcoming and secure

We continue to press the Infracos to crack down on graffiti and other forms of vandalism. Following the success of our zero-tolerance approach to station and train based graffiti we are now focusing on track based graffiti. With over 220km of open track this is a huge issue that we are tackling by regaining control of our environment one section at a time. Already a programme on the District and Central lines has shown encouraging results.

A continuing focus on anti-social behaviour between LU and the British Transport Police led to 83 anti-social behaviour orders served by the Courts. A notable reduction in vandalism, trespass and stone-throwing on the east end of the District line has been observed over the last year thanks to increased policing and a concerted effort by the schools liaison unit of London's Transport Museum.

Despite our successes, crime and anti-social behaviour remain a psychological barrier that inhibit some people from using the Underground. We are continuing our focus on this issue particularly through effective deployment of the British Transport Police, following the recruitment of 200 additional officers (a 40% increase in the BTP establishment).

10.4 Accessible and inclusive

The challenge of making the oldest Underground railway in the world truly accessible to all is daunting. As described above, we expect the PPP station programme to deliver customer facilities that address some of the causes of inaccessibility. These include CCTV and help points to improve security and reduce the fear of crime; features to aid the mobility and hearing impaired including induction loops and guidance systems, and greater provision of clear audio and visual information. Delivery of these features at the first batch of stations represents a small step forward.

The number of stations offering step-free access increased to 44 in the last year with recent additions including East Ham, Hounslow East and Earl's Court. Reliability of step free lifts remains a priority for LU and the Infracos. Delivering an accessible platform/train interface continues to be a challenge, but after a year of development work with the Infracos, the first platform humps should finally be introduced next year.

Access and inclusion is not just about physical measures. Over the last year we have put in place measures to ensure that Disability Equality awareness training is included in the annual refresher courses for all customer service staff. Meanwhile a thousand LU managers are attending our award-winning Managing Diversity training programme.

10.5 Managing change

In the last year we have started to see the expected increase in engineering work necessary to deliver the investment programme. This is likely to increase further over the coming years as the Infracos deliver a higher work rate. All this means that London Underground must improve reliability within an even more challenging environment and find innovative ways of minimising the impacts of necessary disruption on customers.

10.6 Supporting a world class city

The delivery of the first new car for the Jubilee line, the delivery of more step-free stations, the major interchange works at King's Cross St. Pancras, the helpfulness and motivation of our staff all contribute to a picture of LU delivering for London.

We are playing a full part in London's plans to host the 2012 Olympic and Paralympic Games and we were delighted to play host to the IOC delegation when they visited London in February 2005.

More recently, the huge response to our proposals for later running on Friday and Saturday nights shows the passion that Londoners have for the Underground and the issues we face. Over 55,000 responses to the public consultation were received and the views expressed will be taken into consideration as we decide whether to implement later weekend services.

The London Underground has grown and developed with the city it serves. In the 21st century, London remains a pre-eminent world city. Through our investment programme we are determined to keep pace with the development of our city, getting the best that we can from the PPP contracts we inherited to deliver the renewal of the Tube.

10.7 Looking forward

As this report has already alluded, year three of the PPP contacts should see an increased work rate from the Infracos.

By the end of year three, the station enhancement programme should have seen completions at over 60 stations, providing customers with modern information systems, accessibility features and help points as well as a more pleasant environment. Around 9% of track should have been replaced, leading to greater reliability and improved ride quality. Over 75 escalators and five lifts should have undergone renewal, again leading to higher levels of reliability and improved transit times through stations.

We expect to see more tangible signs of the line upgrades that will ultimately yield reduced waiting and travelling times, and greater capacity to reach rising demand. The first example of this – the introduction of a 7 car Jubilee line – will be in place by early 2006, instantaneously providing 16% extra capacity per train on that line. The first refurbished trains on the District line will come into regular operation with improvements in accessibility, information and a smart new look. Across the network we expect the Infracos to demonstrate their understanding of the asset base by delivering improvements in asset reliability and reductions in delays for customers.

Outside the core PPP the work rate will also be intense. The enlarged Wembley Park station comes into operation later this year and capacity works will continue at King's Cross St. Pancras. Accessibility works will go on site at a number of locations while completion of the project at Brixton will prove an important addition to the network. With this level of activity planned it is important that the network remains resilient to disruption, and we are improving network resilience by investing both in physical assets and information systems. This year sees the start of a programme to reinstate points, crossovers and sidings decommissioned through cost cutting in previous decades but denying us vital operational flexibility. Early in the programme are works in the Wembley area to support the enlarged station and new national stadium. In terms of information, we will be deploying more visual electronic displays as a vehicle for real time information, and providing better content by automating processes and linking information and signalling systems. Meanwhile we are looking to improve dissemination of information about planned closures.

None of this can be done without constant attention to basic reliability and it is incumbent on all of us, Infracos and operators, to achieve this.

July 2005