Central London Congestion Charging Scheme

Impacts Monitoring

Summary Review: January 2005

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1 Background and purpose of this report

This report provides a summary review of the latest available information about the impacts and operation of the central London congestion charging scheme that was introduced in February 2003.

It updates some of the material previously presented in Transport for London's *Impacts Monitoring: Second Annual Report* published in April 2004, including new data up to the Autumn of 2004.

Further and updated details of the findings of the monitoring work to date will be provided in a Third Annual Impacts Monitoring Report, expected to be published in Spring 2005.

2 Introduction

Congestion charging was successfully introduced in central London in February 2003. It contributes directly to four of the Mayor's transport priorities:

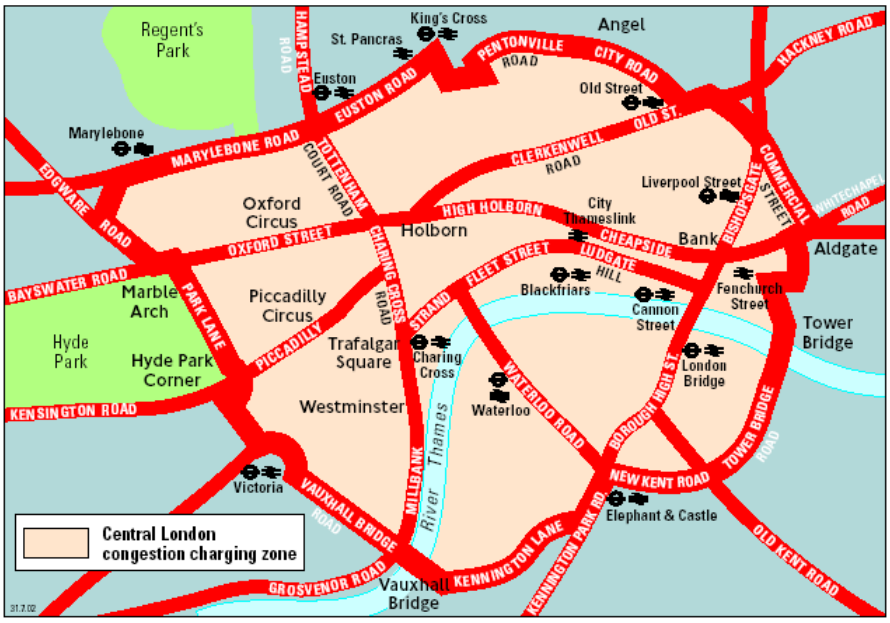
- to reduce congestion;
- to make radical improvements in bus services;
- to improve journey time reliability for car users;
- to make the distribution of goods and services more efficient.

It also generates revenues to support the Mayor's Transport Strategy more generally.

The congestion charge is an £5 daily charge for driving or parking a vehicle on public roads within the congestion charging zone between 0700 and 1830, Monday to Friday, excluding weekdays and public holidays.

The central London congestion charging zone is shown in Figure 1. It covers 22 square kilometres in the heart of London, including centres of government, law, business, finance and entertainment.

Figure 1 The Central London congestion charging zone.



In April 2004, Transport for London (TfL) published *Congestion Charging: Impacts Monitoring Second Annual Report.* This summarised available information on the impacts of the scheme reflecting approximately one year of operation.

This Summary Review updates many aspects of this material, ahead of a further comprehensive Third Annual Impacts Monitoring Report, which is expected to be published in Spring 2005.

3 Overview

- The scheme continues to operate effectively and satisfactorily. Driver responses to charging remain stable: traffic data, payments data and other survey information all continue to indicate relatively stable patterns of travel.
- 2004 has seen little overall change in key indicators of traffic patterns in and around the charging zone. Provisional results suggest that traffic levels in 2004 have been comparable overall to those seen after the introduction of charging during 2003.
- Taking into account the effects of post-charging traffic patterns, reductions in congestion inside the charging zone have been maintained at an average level of 30 percent over the established pre-charging reference value, though there is some evidence of increased variability in traffic conditions within the zone in recent months.
- Ongoing improvements to the bus network continue to bring benefits, and continuing growth in patronage is being matched by increased service provision.
- Social impacts surveys of residents of the charging zone report reduced congestion and improvements to the local area. The majority of all respondents interviewed in both 2002 and 2003 say that congestion charging has benefited or made no difference to them overall.
- The introduction of charging in February 2003 coincided with a slowdown in the UK and London economies (as well as the Central Line closure, the Iraq War etc.). This affected the business environment across London, and some of these factors are likely to have affected central London more than other areas, with sectors such as retail affected more than others. The evidence so far suggests that for the vast majority of businesses and sectors, the impact of the scheme has been marginal.
- Emerging data from TfL and third-party research covering *inter alia* the impacts of congestion charging on property price trends, theatregoers, the wholesale markets and key workers is tending to suggest a neutral overall impact, albeit highlighting some specific issues for follow-up.
- Against a backdrop of reducing road traffic accidents across London, there is some evidence of additional accident reductions within the charging zone and on the boundary route (the Inner Ring Road), reflecting overall reductions in traffic levels due to charging.
- Results so far from a comprehensive study of impacts in the boundary area just outside of the charging zone indicate that these impacts are largely neutral, with some transport gains and a general absence of traffic, transport, congestion and environmental problems attributable to charging. However, the social and economic aspects require further study.

- Given the stability in traffic levels during 2004, the 12 percent reductions in the emissions of key traffic pollutants previously reported will have continued. However, owing to the dominance of external influences on air quality in central London, it is not possible to identify a clear 'congestion charging effect' in monitored air quality data.
- Charge payments remained very stable throughout 2004, at levels comparable to 2003. The benefits of TfL's Supplemental Agreement with Capita and other customer improvements continue to be apparent, with significant improvements in call centre performance and enhancements to other payment channels. Over 80 percent of users are now satisfied with the service.
- There have been a number of improvements to the enforcement process during 2004. These improvements, combined with better public understanding of how the scheme works, have resulted in increased payment and compliance levels and reduced numbers of representations and appeals. Further improvements are expected over the next six months.

4 Key developments with the scheme

The central London congestion charging scheme – including its associated traffic management and complementary public transport measures – is kept under continual review by Transport for London. Various adjustments have been made to the scheme since it was first formally proposed in a Scheme Order made by TfL in 2001 and confirmed by the Mayor in 2002.

4.1 Changes to the Scheme Order

The Mayor of London confirmed the Greater London (Central Zone) Congestion Charging Order 2001 in February 2002. The Scheme Order is the legal framework for the congestion charging scheme and contains the definitions of what the charge is, where it applies, details on discounts and exemptions from the scheme, penalty charges, refunds and other high level operational matters.

Since February 2003 a number of variations have been made to the Scheme Order, usually to improve the operation and customer service of the scheme. Changes to the Scheme Order are made through a procedure known as a Variation Order. Each Variation Order is subject to public consultation before the Mayor considers the representations and decides whether or not he wishes to confirm the change (with or without modifications) and make it part of the Scheme Order.

To date there have been nine Variation Orders confirmed, and two are currently the subject of public consultation. The changes confirmed and currently proposed include:

- Adding the National Health Service and Crown Estates Paving Commission to the list of those organisations eligible for a 100 percent discount for certain vehicles;
- Extensions to the residents' discount zone to cover those who reside outside the charging zone but who had no option but to park inside the zone due to controlled parking zone boundaries;
- Permitting vehicle fleets made up of owner-drivers or managed by logistics companies to be eligible for fleet account arrangements;
- Extending the SMS text messaging facility to include the payment of the £5 surcharge between 10pm and midnight on the day of travel;
- Increasing penalty and enforcement charges for non-payment of the congestion charge;
- Allowing payment by additional credit and debit card types; revising the definition of resident's vehicles;
- Removing the financial criteria for the National Health Service patients' reimbursement scheme;
- Lowering the threshold of the congestion charging fleet schemes from 25 vehicles to 10;

- Improvements to the 100 percent discount for registered holders of Blue Badges;
- Making the three charging days that fall between Christmas Day and New Year's Day 'non-charging' days;
- A proposal to raise the charge from £5 per charging day to £8 per charging day for those not on fleet schemes;
- A proposal to raise the charge from £5.50 per charging day to £7 for vehicles on the automated fleet scheme; and from £5 per charging day to £7 for vehicles on the notification fleet scheme;
- A proposal to discount monthly and annual charges by 15 percent;
- A proposal to reduce a number of administrative charges.

TfL will continue to keep all elements of the congestion charging scheme under review and recommend making further changes to the Scheme Order where appropriate.

5 Recent trends in traffic and congestion

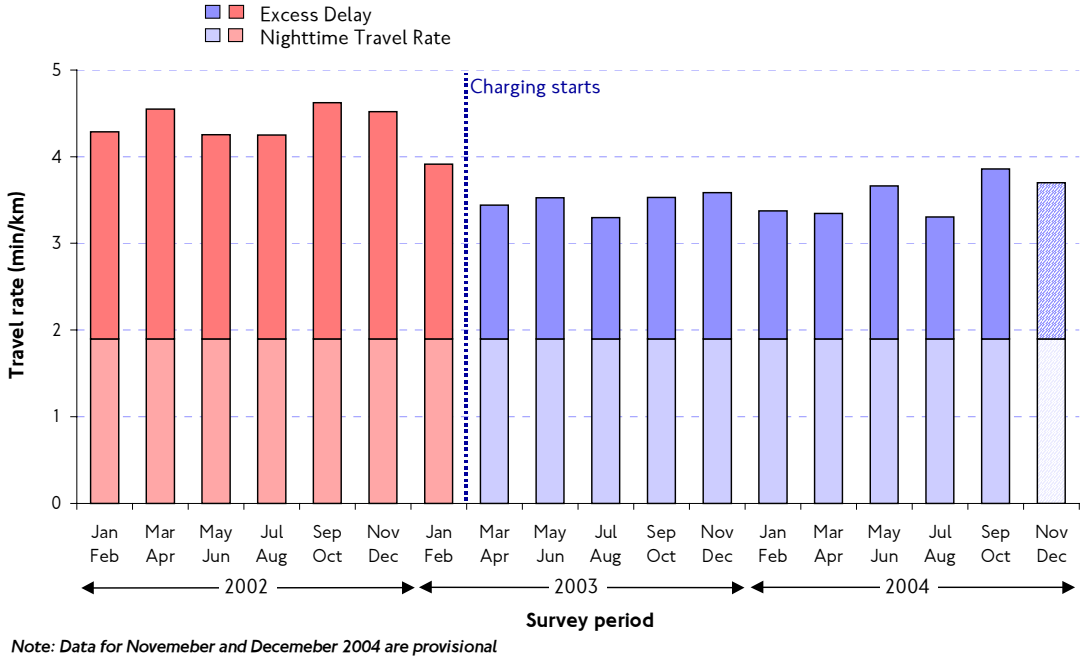
5.1 Congestion within the charging zone

The Second Annual Impacts Monitoring Report described average reductions in congestion within the charging zone of 30 percent against a pre-charging reference value of 2.3 minutes per kilometre. This figure originated from regular bi-monthly speed surveys, which have continued throughout 2004.

The report also made reference to the need to re-weight the time-series to take account of the fact that traffic patterns within the charging zone had changed since the introduction of charging. The speed surveys are 'flow-weighted' with reference to observed traffic volumes on each road.

Figure 2 shows the updated and re-weighted time-series, extending to Autumn 2004, and including provisional data from the last two months of 2004. As was expected, the re-weighting of post-charging surveys had only a small effect on the comparison of conditions before and after the introduction of charging. However, the net effect was to marginally increase (by 3 percentage points) the average 30 percent reduction in congestion previously reported to end February 2004.

Figure 2 Congestion levels in the charging zone during charging hours.



Note: Data for Novemeber and Decemeber 2004 are provisional

Individual bi-monthly surveys for the rest of 2004 have tended to produce more variable results. However, considering all 10 available post-charging surveys up to September/October 2004 (i.e. excluding the provisional data for November and December 2004) and using the re-weighted post-charging data, the average reduction in congestion remains at 30 percent.

Observed delays during charging hours remain typically between 1.4 and 1.8 minutes per kilometre (average of 1.6 minutes per kilometre), against the pre-

charging reference value of 2.3 minutes per kilometre, which is unaffected by the re-weighting.

Available survey and operational evidence continues to suggest the absence of any significant traffic problems on the Inner Ring Road that might have been attributable to diverted traffic resulting from drivers avoiding the charging zone.

5.2 Traffic entering the charging zone during 2004

Comprehensive counts of traffic entering and leaving the charging zone are conducted each Spring and Autumn, the combined counts providing an 'annualised' estimate of traffic volumes for each year (i.e. the average of Spring and Autumn counts in each year).

Figure 3 Traffic entering the charging zone during charging hours.

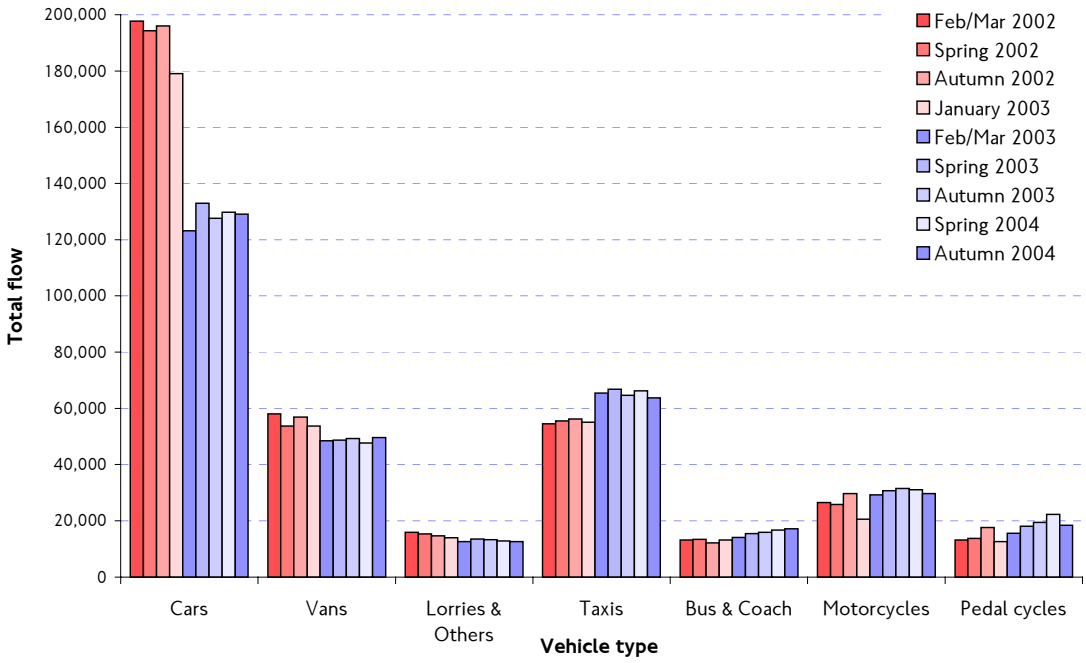


Figure 3 includes provisional results from the Spring/Autumn 2004 counts, compared with equivalent counts for 2003 (post-charging) and 2002 (pre-charging). It is seen that overall levels of traffic entering the zone during 2004 have been very similar to those seen in 2003. Therefore the overall traffic changes observed after the introduction of charging during 2003 have been broadly maintained.

For all traffic, and for vehicles with four or more wheels, the 2004 annualised estimate of vehicles entering the charging zone during weekday charging hours is identical to that for 2003, at 324,000 and 273,000 vehicles respectively. The percentage change in traffic between 2003 (Spring/Autumn) and 2004 (Spring/Autumn) is therefore 0 percent.

Within these overall totals cars, vans, lorries (i.e. potentially chargeable vehicles), together with taxis and motorcycles, are all effectively unchanged compared with 2003. Buses and pedal cycles both show some increases year-on-year.

Very similar trends in total traffic and the individual vehicle types have also been observed for traffic leaving the charging zone.

5.3 Other key traffic indicators

Data from the combined Spring and Autumn 2004 counts for other key traffic indicators are still being assembled. These will be reported in the forthcoming Third Annual Monitoring Report.

5.4 Traffic on selected local roads

Traffic on selected roads surrounding the charging zone has been monitored at the request of the individual boroughs. Figure 4 below shows the average, seasonally adjusted traffic levels and year-on-year changes for all sites that have been monitored continuously and have comparable data. These sites do not provide indicators of overall traffic change within a borough and will be affected by factors other than charging. However, they are collectively a useful indicator of traffic change on specific local roads surrounding the charging zone that were thought likely to experience additional traffic as a result of the scheme.

In the first year after charging, monitored roads in Kensington and Chelsea, Southwark and Westminster experienced small net increases in traffic levels of between 2 percent and 6 percent. Monitored roads in Tower Hamlets and Camden saw net reductions of 4 percent and 6 percent respectively.

Since then traffic on monitored roads has fallen, by between 2 percent and 8 percent overall in all boroughs, with the exception of Kensington and Chelsea where there has been no overall change.

As a result when comparing 2004 traffic levels with the year before charging (2002), there continue to be small net increases in Southwark, 4 percent, and Kensington and Chelsea, 5 percent, a 1 percent increase in Westminster, and noticeable decreases in Tower Hamlets, 7 percent, and Camden, 13 percent.

Figure 4 **Traffic change on selected local roads surrounding the charging zone. Charging hours, vehicles with four or more wheels (seasonally adjusted 'annualised' values).**

		Before Charging 2003	After Charging 2003	After Charging 2004	Difference Before and After 2003	Diffrence Before and After 2004	Difference After 2003 and 2004
Southwark	Dunton Rd	9,000	9,700	10,100	8%	12%	4%
	John Ruskin St	5,200	5,200	4,800	0%	- 8%	- 8%
	St James's Rd	15,100	16,000	15,500	6%	3%	- 3%
	Total	**29,200**	**30,900**	**30,300**	**6%**	**4%**	**- 2%**
Kensington & Chelsea	Abbotsbury Rd	6,600	6,700	6,300	2%	- 5%	- 6%
	Addison Rd	4,600	4,900	4,900	7%	7%	0%
	Holland Park Ave	24,500	25,500	26,500	4%	8%	4%
	Kensington Church St	11,900	13,500	13,200	13%	11%	- 2%
	Kensington High St	14,900	15,100	16,000	1%	7%	6%
	North Pole Rd	13,000	13,200	12,400	2%	- 5%	- 6%
	Total	**75,300**	**78,600**	**79,000**	**4%**	**5%**	**1%**
Tower Hamlets	Bethnal Green Rd	8,700	8,200	8,200	- 6%	- 6%	0%
	Bow Common Lane	7,000	7,300	7,400	4%	6%	1%
	Old Bethnal Green Rd	6,400	5,100	4,500	- 20%	- 30%	- 12%
	Poplar High St	5,000	5,300	5,200	6%	4%	- 2%
	Total	**26,900**	**25,800**	**25,100**	**- 4%**	**- 7%**	**- 3%**
Camden	Agar Grove	9,600	9,300	9,800	- 3%	2%	5%
	Warren St	1,800	1,800	1,700	0%	- 6%	- 6%
	Tavistock Place	9,900	8,800	6,400	- 11%	- 35%	- 27%
	Prince of Wales Rd	12,400	12,400	12,000	0%	- 3%	- 3%
	Prince Albert Rd	13,000	11,600	10,800	- 11%	- 17%	- 7%
	York Way	9,500	8,800	8,100	- 7%	- 15%	- 8%
	Total	**55,800**	**52,500**	**48,500**	**- 6%**	**- 13%**	**- 8%**
Westminster	Belgrave Rd	5,300	5,700	5,700	8%	8%	0%
	Prince Albert Rd	15,800	15,400	15,100	- 3%	- 4%	- 2%
	St George's Drive	4,700	4,800	4,800	2%	2%	0%
	St John's Wood Rd	13,100	14,200	13,600	8%	4%	- 4%
	Sussex Gardens	12,700	12,900	13,500	2%	6%	5%
	West Carriage Drive	16,800	17,100	16,200	2%	- 4%	- 5%
	Total	**68,200**	**69,900**	**68,600**	**2%**	**1%**	**- 2%**
All Sites	**Total**	**255,200**	**257,400**	**251,300**	**1%**	**- 2%**	**- 2%**

There have also been a number of sites monitored periodically within the boroughs of Wandsworth, Lambeth and Hackney. Data for these sites showed that, after charging, there was no net change in traffic levels on monitored roads in Lambeth, alongside net decreases of 6 percent on monitored roads in Wandsworth and 8 percent in Hackney.

Equivalent figures for 2004 show very little change over 2003, with no net change from 2003 on monitored roads in Hackney, and net decreases of 2 percent over 2003 on monitored roads in Lambeth and Wandsworth.

Overall, these results do not show any evidence of systematic increases on monitored local roads outside of the charging zone, and are indicative of further small overall declines in traffic in the annulus around the charging zone between 2003 and 2004.

6 Public transport

6.1 Bus patronage

The Second Annual Impacts Monitoring Report outlined how bus patronage in central London had increased in parallel with the introduction of charging. This reflected both the direct effect of charging itself, together with a wider response reflecting increased capacity and more general improvements to the bus network across London.

Figure 5 **Bus passengers, buses and average occupancy crossing the boundary of the congestion charging zone. Weekday charging hours.**

	Morning Peak			Charging Hours					
	Inbound			Inbound			Outbound		
	No. of Passengers	No. of buses	Passengers per bus	No. of Passengers	No. of buses	Passengers per bus	No. of Passengers	No. of buses	Passengers per bus
Autumn 2002	77,000	2,400	32	193,000	8,280	23	163,000	7,800	21
Autumn 2003	106,000	2,950	36	264,000	10,500	25	211,000	9,900	21
% difference	38 %	23 %	12 %	37 %	27 %	8 %	29 %	26 %	2 %

Figure 5 summarises observed changes for the first year of charging from counts undertaken at all bus entry and exit points into and out of the charging zone. Whilst there had been some increase in the average number of passengers per bus, as of Autumn 2003 the additional passengers were successfully accommodated on the enhanced network. This reflected the addition of new capacity via higher frequencies, new routes or larger buses as essential 'complementary measures' to the charging scheme and also as part of more widespread improvements to the bus network throughout London.

Further sample counts, at a sub-set of bus crossing points into and out of the zone only, were undertaken during Autumn 2004, giving a comparable time-series at these sub-set of points back to 2002. These are summarised in Figure 6. This shows the stability in the average numbers of passengers on buses entering and leaving the charging zone during charging hours, despite increased patronage of up to 50 percent since 2002.

Figure 6 **Numbers of buses, passengers and average occupancy levels at a sample of sites on the boundary of the congestion charging zone. Weekday charging hours.**

	Inbound			Outbound		
	No. of Passengers	No. of buses	Passengers per bus	No. of Passengers	No. of buses	Passengers per bus
Autumn 2002	102,300	4,450	23	64,650	3,050	21
Autumn 2003	146,600	5,900	25	77,800	3,900	20
Autumn 2004	149,200	6,100	24	77,150	4,100	19

Other detailed monitoring is ongoing as part of the normal bus service review processes. These findings are consistent with further increases in bus capacity which have been delivered since the introduction of charging.

6.2 Bus journey time and reliability

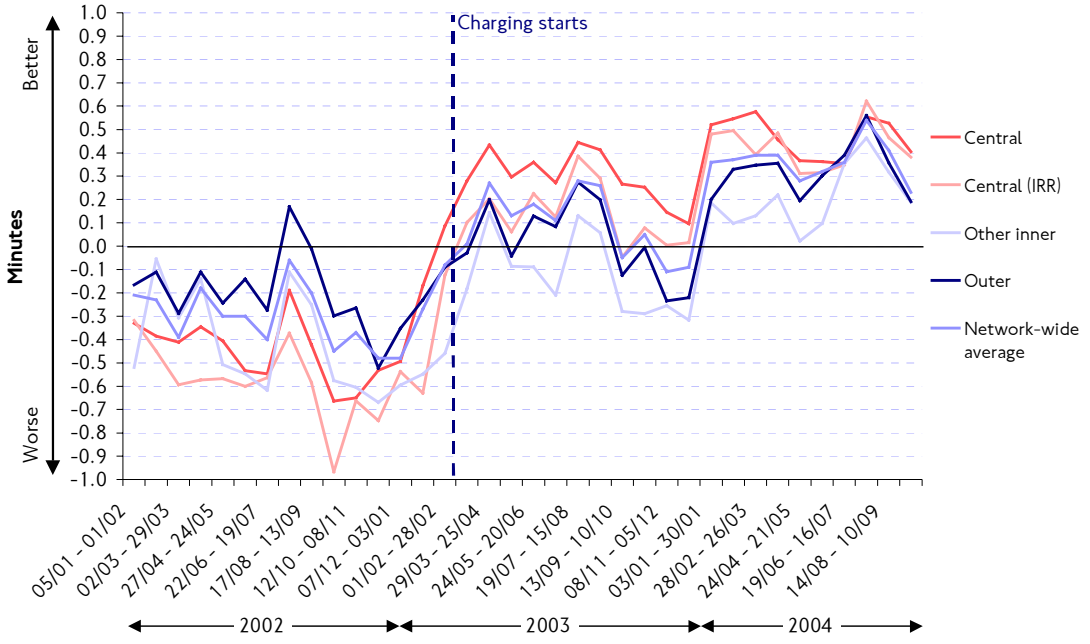
Improvements in bus reliability over recent years have been due to a variety of factors including: increased investment in more robust schedules, enhanced route supervision and the introduction of Quality Incentive Contracts, as well as the introduction of congestion charging that has reduced congestion and improved journey times in and around the charging zone.

In the first year after charging across London there was a reduction of 24 percent in excess waiting time, the additional wait time at bus stops experienced by passengers caused by service irregularity or missing buses. For passengers in and around the charging zone the improvement was greater, with a reduction in excess waiting time of over 30 percent compared to the previous year.

In the more recent months, March to October 2004, the situation has continued to improve with a further reduction in excess waiting time of over 15 percent for passengers in and around the zone compared to the same time periods in 2003. There have been similar improvements across the rest of the network.

London Buses sets the bus operators' performance standards for excess waiting time based on the characteristics of the route. Figure 7 shows the decreases in actual excess waiting time relative to the minimum standards. This illustrates the continuing improvements, particularly in central London.

Figure 7 Bus Excess Waiting Time (weekday charging hours). Difference between Excess Waiting Time standards and actual Excess Waiting Time.



Other improvements to service reliability have arisen as a result of reduced traffic congestion. In the year after charging (2003) there was a reduction of 40 percent across London in the amount of disruption to the service caused

by traffic congestion compared to the year before. Again routes that operate in and around the charging zone experience the greatest improvement, with reductions of around 60 percent.

In more recent months, March to October 2004, there has been little further change to the amount of service disruption caused by traffic congestion in and around the charging zone, although across London there has been a continued improvement, with a further reduction in disruption of 10 percent.

6.3 Underground patronage

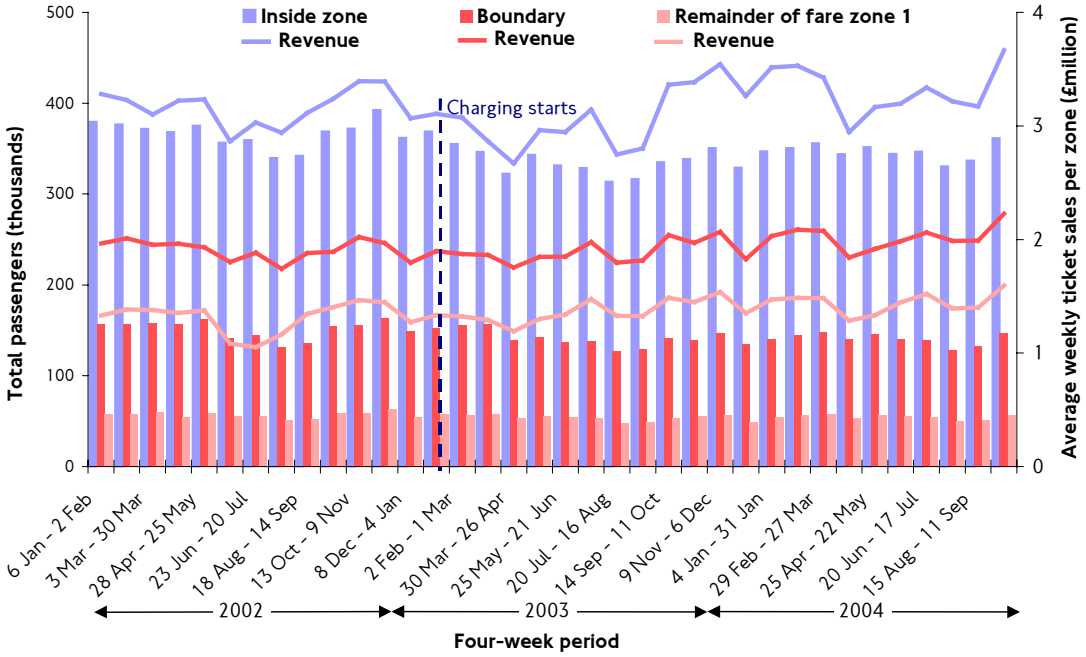
The Second Annual Impacts Monitoring Report described year-on-year declines of up to 8 percent in the number of Underground passengers entering central London during the weekday morning peak period comparing 2003 after charging with 2002 before charging. This reflected a wider trend of declining patronage observed across the whole of the network with reductions of up to 6 percent. This was reflected to a greater or lesser extent in all time periods (including weekends) and on most parts of the network.

These reductions were thought to be due to a variety of factors unrelated to congestion charging, such as the temporary but prolonged closure of the Central line, transfer to buses (reflecting improvements to the bus network) and a general decline in tourism and economic activity. A small increase in passengers due directly to the introduction of charging was more than outweighed by these reductions.

Figure 8 updates the graphic presented in the Second Annual Impacts Monitoring Report to include data to Autumn 2004. In more recent periods, March to October 2004, there has been some upturn in the patronage levels, although in most respects patronage still remains lower than that seen in 2002 before the introduction of charging.

In 2002, prior to the introduction of charging, an average of 513,000 passengers exited stations in and around the charging zone during the morning peak period (annual average weekday). In 2003 after the introduction of charging this reduced to 473,000 passengers (a reduction of 8 percent). This net reduction subsumes any small increase in patronage resulting from the introduction of charging, and includes a full year's data for both 2002 and 2003. Note that figures will therefore differ slightly from those previously reported.

Figure 8 **Passengers exiting Underground stations in and around the charging zone during the morning peak period (07.00 to 10.00) and trends in gross revenue taken.**



Over the most recent six-month period morning weekday peak passenger exits have increased to an average of 487,000 passengers, still representing a reduction of 6 percent over 2002. Between March and October 2004 'all day' patronage has increased to 1,228,000 passengers exiting stations in and around the zone during charging hours, this still representing a 4 percent reduction over 2002.

The trends in passenger exits at stations are generally reflected in ticket sales data, as also illustrated by Figure 8. In the first year since charging there was no change in the (gross) value of ticket sales at stations in and around the charging zone on weekdays compared to the previous year. This reflected a combination of declining patronage and the effect of a fares adjustment.

More recently, March to October 2004, there has been a 10 percent increase in the gross value of ticket sales in and around the charging zone compared to the same periods in 2003. This is greater than the 6 percent increase observed across the network. However, this is likely to have been most strongly affected by general levels of activity across the charging zone rather than charging itself.

Although these recent gross revenue figures do not include a compensation for the fares increase at the start of 2004, the percentage increases in gross revenue are substantially greater than the average percentage increase in fares. This indicator also therefore suggests a general growth in patronage across the network, particularly so at stations in and around the charging zone.

These recent data therefore indicate that the reductions observed in Underground patronage in the period before and over the first year after charging were, at least in part, a temporary feature. Underground patronage in and around central London is currently increasing, but remains below levels observed in 2002 before the introduction of charging. As discussed above, this is likely to have principally reflected factors other than charging.

6.4 National Rail patronage

Passenger counts were undertaken at all 22 central London rail stations in both Spring 2002 and Spring 2003. The results were illustrated in the Second Annual Impacts Monitoring Report. They showed that, despite variation between individual stations, there was effectively no overall change in the number of people entering central London by rail corresponding to the introduction of charging, and hence no apparent capacity issues arising from the introduction of charging itself.

These findings have been broadly confirmed by similar counts undertaken by the Strategic Rail Authority in the Autumn of 2003, continuing their time-series. The Authority's counts found an overall increase of 1 percent in the number of passengers entering central London during the weekday morning peak period over Autumn 2002, a similar result to that previously reported by TfL.

7 Social impacts

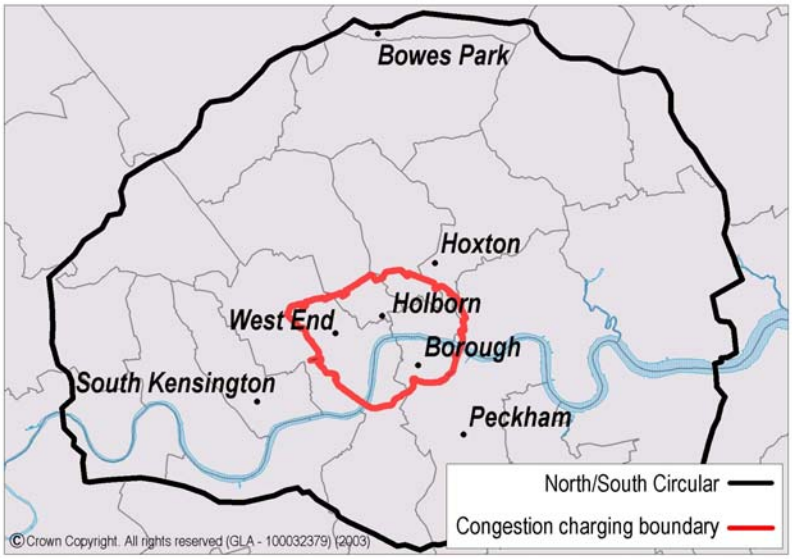
7.1 Background

To understand the impacts the charging scheme had on Londoners' lives two key before and after surveys were carried out. These provide essentially qualitative information that is primarily useful for further understanding the more quantitative estimates of change described elsewhere in this document.

One survey involved face-to-face household-based interviews of residents within the charging zone and more widely in inner London. This was organised in terms of seven 'survey neighbourhoods'; each having different socio-economic and geographical characteristics, to which findings could be related. The survey neighbourhoods were:

- West End, Holborn and Borough (within charging zone);
- Bowes Park, South Kensington, Hoxton and Peckham (outside the charging zone in inner London).

Figure 9 Map of neighbourhoods selected for social impact studies within the charging zone and in inner London.



The second survey involved a comparable interview, but telephone based of individual residents (recruited within the charging zone) of outer London and beyond the M25.

The survey covered a range of topics to help understand residents' experiences of the scheme, particularly in terms of: their local area; their accessibility into and within the zone; impacts on different activities they undertake; and impacts on their time and finances.

Some key findings from this survey are described here. The results are not statistically representative of the generality of Londoners, but do provide rich detail about the nature of direct and indirect effects of the scheme, how

perceptions of the scheme have evolved, and how all of this has varied in the context of each of the individual survey neighbourhoods.

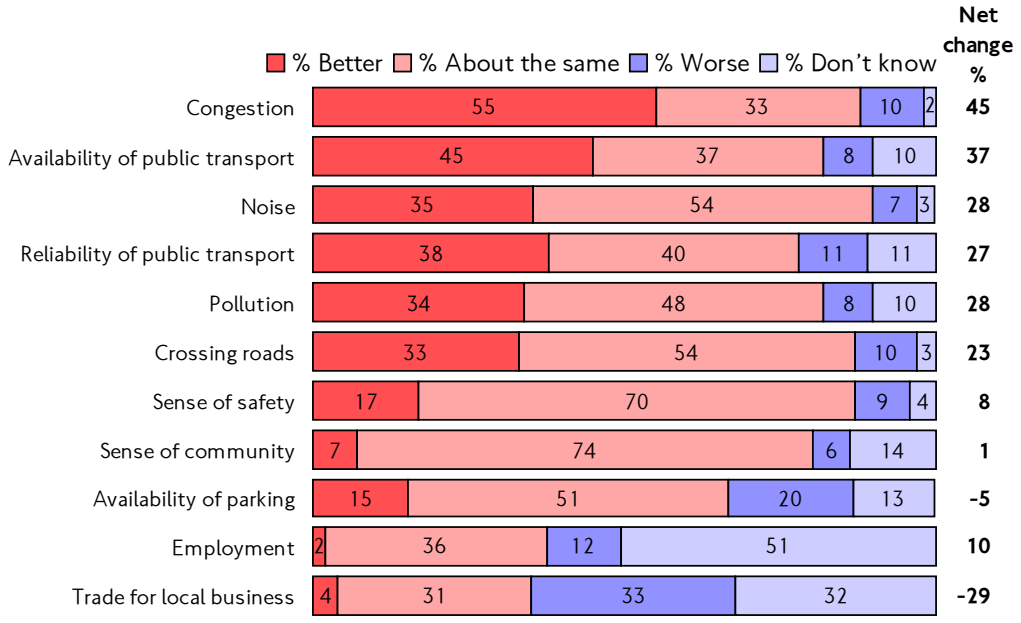
7.2 Change in local area

Respondents living in the charging zone neighbourhoods are generally positive about the change in their local area since the introduction of charging. The most positive impact of the scheme is perceived to be the reduction in congestion, with 55 percent of respondents spontaneously mentioning this. Related to this, half of charging zone respondents feel that travelling within the zone is now easier, while only one in twenty say it is more difficult. Many respondents report spending less time travelling overall and for specific trips, with the majority of this change being directly attributed by those surveyed to the charging scheme.

Inner London respondents are more likely than those in the charging zone to say their local area has not changed since the introduction of the charging scheme (63 percent compared to 41 percent). Of those who do report change in Inner London, slightly more say their neighbourhoods have deteriorated than improved between 2002 and 2003. In line with this, when asked to 'rate' a list of aspects in their local area, more Inner London respondents felt that the availability of parking, congestion, pollution, noise and sense of safety have deteriorated rather than improved between 2002 and 2003, though given the traffic and other monitoring results described elsewhere, there is no obvious effect of charging that would justify these concerns overall.

Figure 10 Views on local area, charging zone respondents.

Do you think your local area is better off, worse off, or about the same in terms of… than before the scheme was introduced?



7.3 Access to local shops, facilities and services

With regard to access to local shops, facilities and services, most charging zone respondents have not experienced any change. Of those who do report change, 19 percent say that accessibility is better compared to 6 percent who say that it has deteriorated.

Access within the local area is also considered similar to before the scheme was introduced by the majority of Inner London respondents. Respondents from Hoxton are the most negative about accessibility, reporting an increase in cars parked in their area, as well as concerns about 'strangers' parking in their neighbourhoods. It is thought that these views largely reflect borough local traffic management and parking schemes that have been introduced in the area around the charging zone between 2002 and 2003.

The proportion of respondents who say they have started to do online shopping, or who do this more often than in 2002 before the scheme was introduced, increases with distance from the zone – rising from 5 percent of respondents within the charging zone to 36 percent beyond the M25. However, the proportion of respondents now shopping online and claiming to shop online more as a direct response to the charging scheme is higher within the charging zone than beyond the M25 (30 percent and 12 percent respectively). Around one fifth of Inner and Outer London respondents who shop online claim to do so primarily because of the charging scheme, although this needs to be seen in the context of the small proportion that would have shopped in the charging zone by car before the introduction of charging.

7.4 Access to the charging zone

The majority of respondents broadly feel unaffected by the scheme. Around two-thirds say they have experienced no change in getting to the zone, partly due to their relative infrequency of travelling into Central London by car. Of those who report change, respondents are divided about whether accessibility to the charging zone is better or worse.

7.5 Parking

Parking is an important, albeit secondary, issue in terms of how respondents are likely to experience the scheme. For example, over a quarter of Inner London respondents spontaneously cite fewer parking spaces, excessive traffic wardens or a rise in the cost of parking as one of the main reasons why their local area has deteriorated. However, it is unlikely that charging is the primary cause of this phenomenon in the inner London neighbourhoods surveyed. Eighteen percent of inner London respondents say that 'sense of safety' in their area has deteriorated, compared to 6 percent who say that it has improved since the introduction of charging, but again this may be related to perception of crime rather than to charging itself.

7.6 Public transport

Both inner London and charging zone respondents are generally positive about the change in public transport provision in their local area in terms of greater availability and reliability. It is notable that fewer respondents expected this improvement when interviewed before the scheme was introduced.

7.7 Social gatherings

Perceptions of meetings with family and friends seem to have been affected by the charging scheme. 43 percent of charging zone respondents believe family and friends are now finding it more difficult to visit them (in line with their prior expectations).

This reduction in visits to family and friends was anticipated by the majority of respondents in 2002, and in fact fewer have actually found these visits 'more difficult' than they expected. The cost of the charge and difficulty with parking are by far the main reasons why respondents say it is difficult for family and friends to visit them, albeit that charging will have generally eased conditions for parking within the charging zone. In addition, there is a perception that penalties may be inadvertently incurred by infrequent users, because of unfamiliarity with the workings of the scheme.

7.8 Travel behaviour

On the whole, charging zone respondents have not greatly changed the number of journeys they make within the zone for a range of activities (e.g. commuting, shopping, business trips). Furthermore, there is little reported change in car use by charging zone respondents, who are eligible for the 90 percent residents' discount. In contrast, there is a significant reported fall in car use by Inner London respondents who pay a £5 daily charge to enter the zone, particularly for commuting and business trips (Figure 11). It is expected that the majority of these former car trips will have transferred to other travel modes.

Respondents in Outer London and beyond the M25 are less likely to drive into the zone for any of the activities asked about. Of the 70 percent of those interviewed who drove into the zone on any occasion before the scheme was introduced, half say their travel patterns (regarding where they drive or the times they drive) have been affected by the scheme. With regard to the amount of time spent travelling, the majority say this has not changed. Of those respondents who report change in Inner London, a slightly higher proportion say more time is spent travelling now than before the introduction of the charge, in line with their prior expectations.

Figure 11 Activities undertaken by car during charging hours, within the zone, charging zone and inner London respondents.

	Charging Zone respondents			Inner London respondents		
	Before charging 2002	After charging 2003	+ / -	Before charging 2002	After charging 2003	+ / -
Base (All panel)	430	430		678	678	
	%	%	%	%	%	%
Main food shopping	20	21	1	13	8	- 5
Commuted to and from	17	14	- 3	12	9	- 3
Visited friends/family	16	17	1	10	6	- 4
Any health trips	12	8	- 4	9	7	- 2
Made any business trips	10	5	- 5	8	5	- 3
Non food shopping trip	10	13	3	5	3	- 2
Any leisure trip	9	10	1	3	3	0
Trip for services or facilities	9	7	- 2	3	2	- 1
Escorted to / from school / nursery	9	6	- 3	2	1	- 1
To and from school/college	3	2	- 1	1	1	0
Any activity	**42**	**38**	**- 4**	**37**	**24**	**- 13**

7.9 Affordability of the congestion charge

The majority of charging zone respondents are finding the congestion charge affordable, at £2.50 per week (with resident's discount), although the prior expectation of some drivers in 2002 have been realised, with just under a quarter reporting difficulty in affording it. There are some clear and unsurprising differences between neighbourhoods and socio-economic groups; for example, respondents from Borough neighbourhood are significantly more likely to be reporting difficulty than those in the West End.

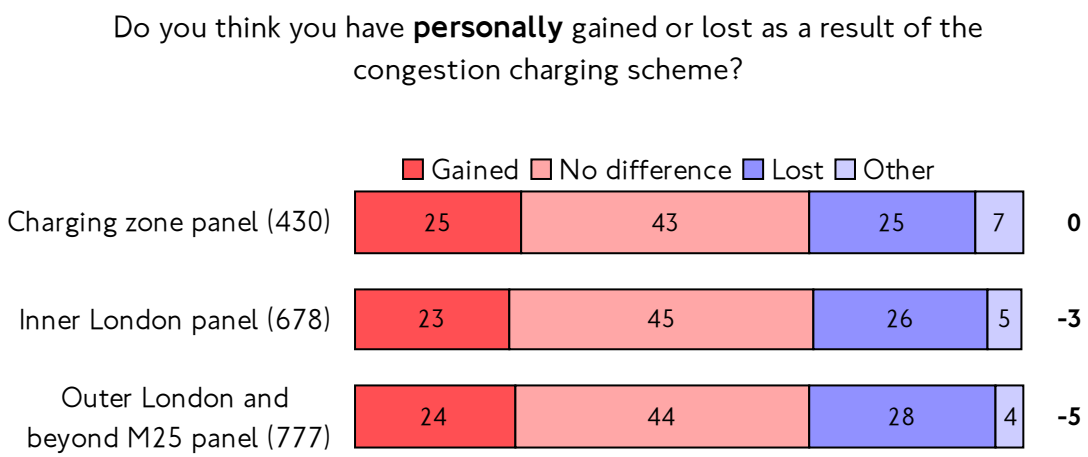
Surprisingly, a smaller proportion of respondents in Inner London report difficulties in affording the £5 per day charge. Indeed, the majority consider it affordable, with many experiences in this regard being better than expected before the start of charging. Respondents from Outer London and beyond the M25 report finding the charge significantly more difficult to pay than Inner London respondents (28 percent compared to 18 percent). In Inner and Outer London, as well beyond the M25, around a quarter of frequent travellers

(those paying the charge for more than 12 weeks per year) are finding it difficult to afford the charge, compared to six in ten who are not.

7.10 Balance of personal experience with the scheme

Now that respondents have experienced the scheme a greater proportion feel they have gained from the charging scheme than expected this to be the case when interviewed in 2002. However, significant numbers have changed their opinion about how it has impacted on both them and their household, with the majority now saying that the scheme has actually made no material difference to them. It should be noted that respondents were more negative (and remain so) about the overall perceived impact of the scheme on their household than about their own personal experience.

Figure 12 Personal overall difference as a result of the congestion charging scheme, all respondents.



8 Business and economic impacts

8.1 Introduction

The Second Annual Impacts Monitoring Report outlined the variety of factors influencing the economy at the time congestion charging was introduced in early 2003. This section updates the overview of the London economy and reports on some new work. A more thorough analysis based on a wider range of studies will be reported in the forthcoming Third Annual Monitoring Report. A brief summary of the findings of some TfL case studies into specific aspects of economic activity and property price trends is provided in Sections 8.4 and 8.5.

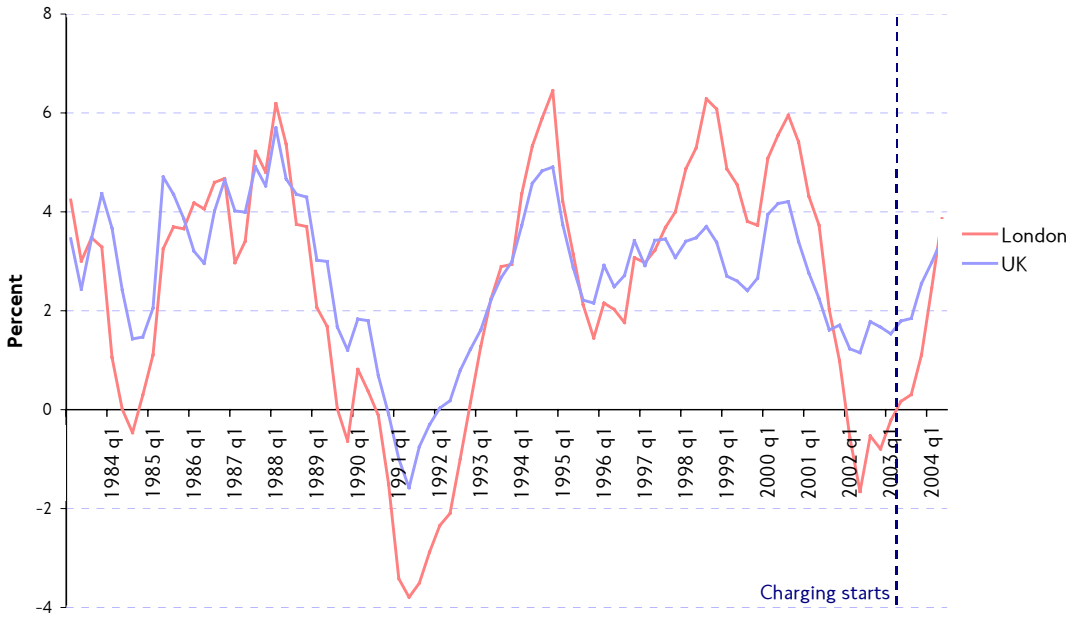
There were several important economic factors affecting businesses during the period when congestion charging was introduced. There is no evidence that the charge has had a significant negative effect on businesses in general within the zone. However, it is still likely that some businesses within certain sectors are experiencing significant impacts – both positive and negative. The retail sector, and particularly car-reliant businesses within the retail sector may have been negatively affected. However, the retail sector is only one part of the charging zone economy, which in turn is part of the wider London economy.

Further, evidence on the retail sector indicates that for most parts of the retail sector recent performance is likely to have been more driven by other factors than the congestion charge.

8.2 Recent trends in the London economy

The scheme was introduced at a time when the economy as a whole was slowing down significantly. As Figure 13 shows, London's economy experienced four quarters of negative growth in 2002-2003. This was the most significant slowdown in the London and UK economies since the early 1990s. This slowdown clearly would have had an impact on the business climate for most industries and makes the task of attempting to assess the separate impact of congestion charging particularly difficult.

Figure 13 Real GVA (Gross Value Added) growth, Greater London and UK.



Source: Experian Business Strategies

The London economy showed a strong recovery at the end of 2003 and beginning of 2004, and the medium term outlook is for continued recovery with growth returning gradually to the longer term trend over 2004 to 2006 *(GLA Economics London's Economic Outlook, October 2004*).

In terms of employment, the slowdown in 2002 to 2003 did not lead to many jobs being shed. Employment dipped briefly in 2002, but recovered to near 2000 levels in 2003. Inflation remained under control. The Bank of England raised interest rates four times during 2004 (to 4.75 percent) to calm consumer spending. House price inflation started to slow during the latter part of 2004 and most economists predict a gradual adjustment rather than a crash.

Tourism numbers have recovered significantly in the year to the second quarter of 2004, but are still below year 2000 levels. There have been no further transport network disruptions on the scale of the Central Line closure in 2003 and in fact transport use has continued to grow at a healthy rate adding to the evidence that a general economic recovery is underway.

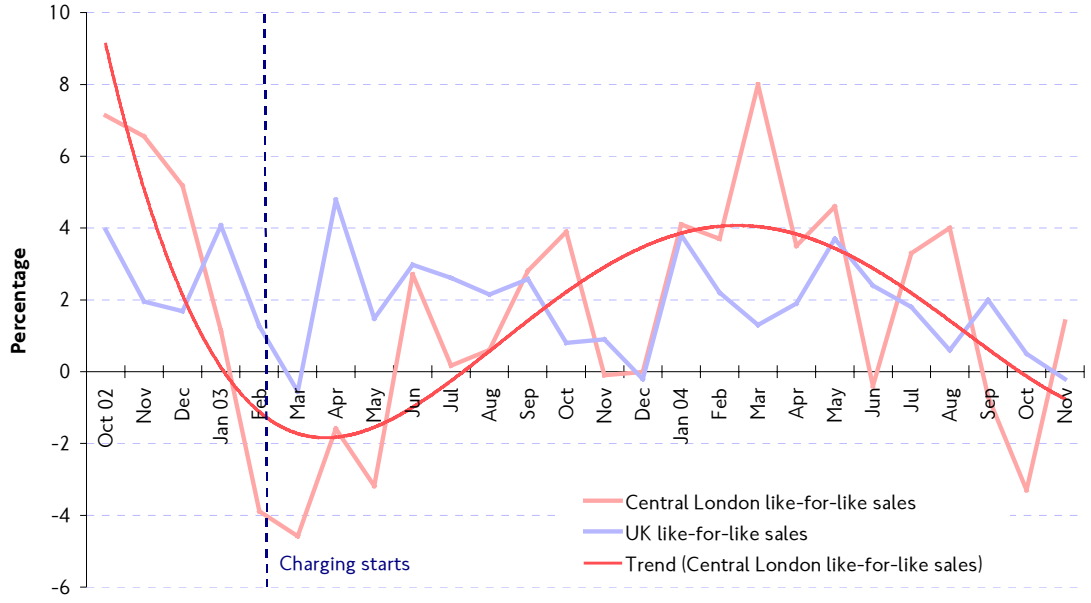
8.3 Recent retail trends

Figure 14 below shows the percentage change in year-on-year retail sales value for central London and the UK as a whole. The figure shows that:

- Trends in central London retail sales continue to be volatile and less stable compared to the UK as a whole which has experienced a more stable growth trend.
- The decline in central London retail sales growth around late 2002 (before charging) had recovered by Autumn 2003, and a period of positive growth

ensue However this growth seems to now be slowing, and these trends seem to reflect wider economic factors, not charging.

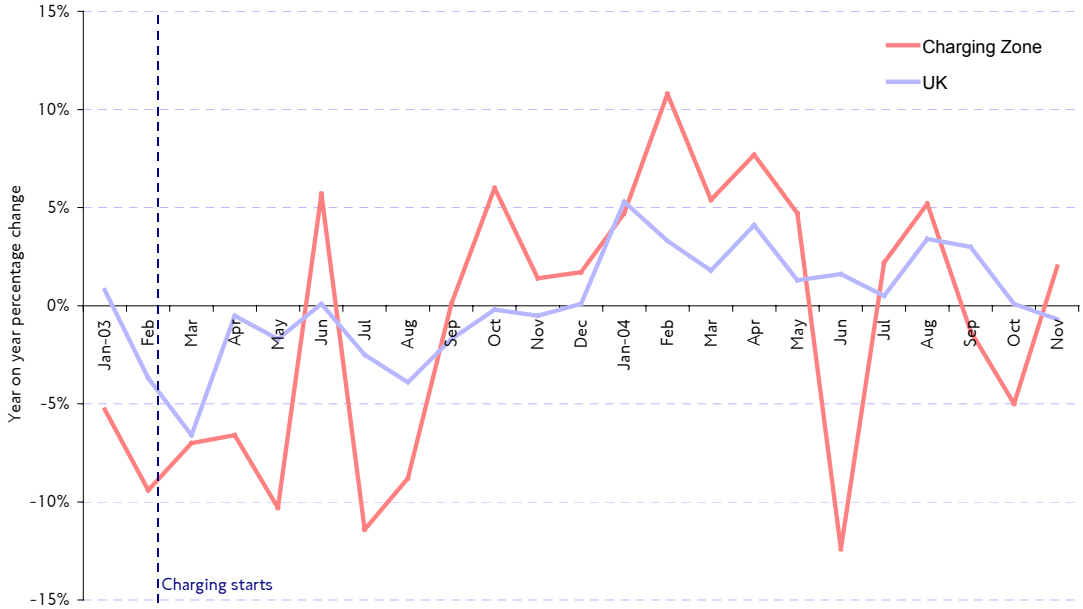
Figure 14 Percentage change in year-on-year retail sales.



Source: LRC London Retail Sales Monitor, November 2004

Trends in shopper numbers are presented in Figure 15, which shows the SPSL retail trade index. This index is a measure of the number of potential shoppers rather than actual retail sales in the charging zone and the UK.

Figure 15 SPSL Retail Trade Index – charging zone compared with UK.



Source: SPSL Retail Trade Index.
The index remains provisional until confirmation of sample

Charging zone retail footfall was below the rest of the UK from before charging started and for much of 2003. However, the latter half of 2003 saw the charging zone outperforming the rest of the UK and returning to a pattern

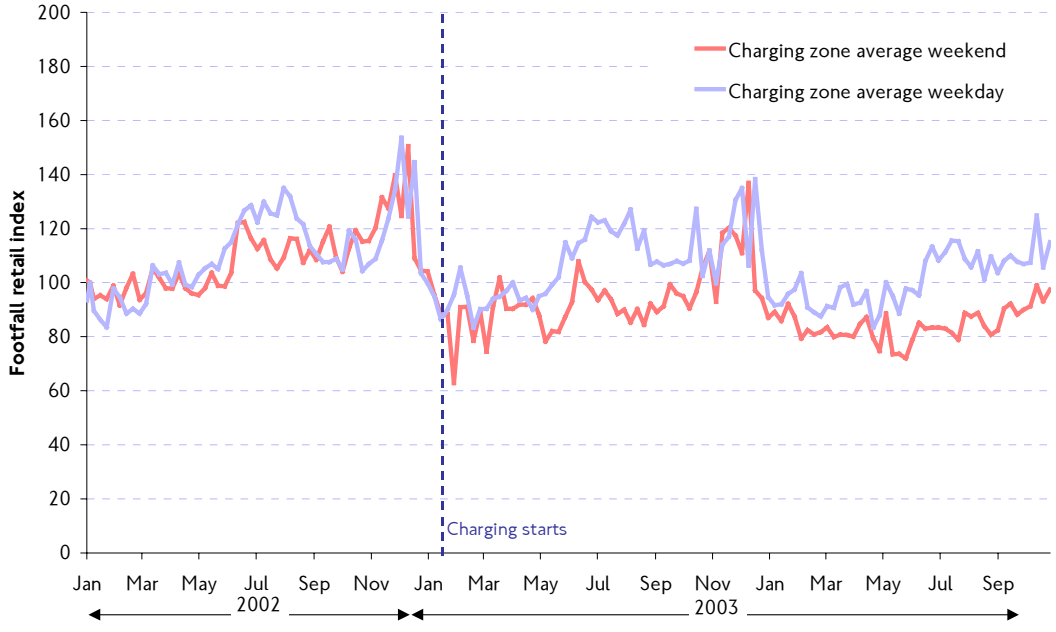
of year-on-year growth. This trend has continued throughout most of 2004, with the main exception of June 2004, which experienced negative growth.

The 2004 recovery in retail footfall inside the charging zone strongly implies that factors other than charging were responsible for the downturn, given that congestion charging has remained a constant factor in the zone since early 2003. This is further supported by the trend in UK retail pedestrians, which also experienced a period of decline in 2003, and a recovery in 2004, suggesting that the recent charging zone retail footfall trend is strongly reflective of wider national trends. (see *Supplement in London's Economy Today*, *November 2004*).

The FootFall index, as shown in Figure 16, is another measure of the number of shoppers present in the charging zone but does not directly reflect the level of spending in the zone. The index shows an average reduction, since charging was introduced compared with the beginning of 2002, of around 10 percent at weekends and a smaller average reduction of around 3 percent for weekdays.

These data imply that any overall reduction in shoppers in the charging zone over the last two years is largely comprised of a reduction in weekend shoppers. Although there have been some indications that there is a misconception among a small minority of Londoners that charging applies at the weekend, this could not reasonably account for the scale of the weekend decline indicated by the FootFall index, as the great majority (typically over 90 percent) of shopping trips to the zone are made by public transport. These data therefore strongly suggest that charging is not a major cause of the decline in retail sales during 2003.

Figure 16 FootFall London congestion charging zone index, weekends and weekdays.



Source: FootFall London Congestion Charging Zone Index, November 2004

The following two sections summarise some recent research looking at the economic effects of the Congestion Charge.

8.4 Dynamics of businesses change

In order to assess the effects of the congestion charge upon the business environment, the company Beta Model Limited were commissioned to compare the performances of enterprises within the congestion zone with those outside. Their Beta Model is a combination of a high quality business database (from Experian/Yell) and a series of analytical tools for reconciling business and economic trends. Its focus is on comparing trends between different areas and its reports are built up from information on individual businesses of which there were over 2.1 million on its UK database in April 2004.

Data was analysed for the period April 2003 to 2004, to identify changes in the business environment that have occurred since the congestion charge was introduced, and for the period April 2001 to 2004 to identify longer term trends. Congestion charging can only be said to have had an impact if it is associated with a significant deviation from the established trend. Six industry sectors were examined with data on the number of enterprises, one-year survival rates and measures for formation and deformation rates. The Beta Model's preferred measure of performance is the rate of annual change in the number of businesses within the congestion charging zone relative to the rate of change within London as a whole.

The main conclusion is that introduction of charging has not had any identifiable effect upon the total number of businesses relative to the rest of London. The analysis showed that the number of enterprises declined within the charging zone relative to the rest of London during April 2003-2004, but that this was a continuation of a trend already seen over the previous two years. Since the congestion charge does not seem to have affected the trend, it can not be said to have had an impact.

The analysis did, however, isolate some changes in the performance of certain categories of enterprises in the charging zone relative to the rest of London. These were:

- A reduction in the share of enterprises in the charging zone with less than 5 employees between April 2001 and April 2004.
- A decline in formation rates and deformation rates for businesses of less than 5 employees between April 2000/01 and April 2003/04.
- A decrease in formation rates and an increase in deformation rates for enterprises with over 6 employees between April 2000/01 and April 2003/04.

It is not possible to say with confidence at this stage whether the changes in the trend are associated with the congestion charge. It is possible that small firms have been less likely to set up new businesses within the charging zone

during 2003/04 and that this led to a higher than usual survival rate amongst existing small firms as well as providing the opportunity for larger firms to expand. If so, this could be the result of increased uncertainty and the economic slowdown having a differential effect on central London compared to London as a whole.

8.5 Property prices and business rates

Property prices and rental yields are useful indicators of economic performance and provide another method of estimating differences in performance between the congestion charging zone and the rest of London. As with other indicators, charging was only one of several possible influences on property prices during 2003, and it seems reasonable to conclude that investor sentiment would have been affected by factors such as the Iraq war.

Again, the approach to testing the impact of congestion charging was to compare performance since the introduction of the scheme with recent trends, using appropriate control areas. The conclusion of the study was that there was no strong evidence of a positive or negative impact of the charge on property prices.

Commercial property prices

Analysis was carried out to examine the investment performance of shops and offices situated within the congestion charging zone. Using the Investment Property Databank, rental growth rates and yield movements were examined in two locations – the area situated 1km from the periphery of the zone's boundary (inside the zone) and the area within the inner core of the zone. These data were then compared with inner London, outside of the charging zone. Yield impact on capital values expresses an influence on capital values that comes from movements in yields due to changes in investor sentiment about the investment.

Isolating the impact of the congestion charge on rental values and yields from other market influences is extremely difficult, and particularly so in 2003. In 2003 the strength of investor demand bore a powerful influence on retail and office yields. In addition, central London office markets were experiencing their highest vacancy rates since the early-1990s recession and the falls in rental values were particularly steep.

Although the analysis cannot therefore be conclusive, by examining trends between properties within the zone and benchmark areas, it is possible to determine whether the data are consistent with charging having had a negative or positive effect. These relative impacts are summarised below:

Figure 17 Rental growth and yield impact on capital value, charging zone compared to rest of inner London (effects of all factors).

	Rental growth	Yield impact on capital value
Shops within 1km of zone periphery	Marginally negative	Marginally negative
Shops situated in inner charging zone	Negative	Negative
Offices within 1km of periphery of zone	Positive	Negative
Offices situated in inner charging zone	Negative	Positive

Rental growth

Over the last few years there has been a trend in weaker retail rental values in the charging zone and inner London and this appears to have been primarily due to weak international tourism. However, in 2003 inner London's retail rental growth showed an improvement on 2002, but the charging zone's retail rental growth continued to weaken.

Given that the downturn in office rental values pre-dated the introduction of the congestion charge by 12 months and that the overall fall has been almost as severe outside the zone as inside, it is clear that any impact that the charge may have had on demand from office occupiers has been marginal. The negative differential in rental growth between the charging zones and the rest of Inner London could be viewed as evidence that that the charge has had a negative impact, but as in the retail market, the gap was greatest in the inner core area which might be expected to have been less affected than locations within 1km of the boundary. It is quite possible that the variation in rental growth is more a function of differences in occupier demand between core and fringe office locations, with businesses in the rest of inner London less affected by the recent global downturn than those inside the zone.

Yield movements

The difference in yield movements – a measure of investor sentiment – between shops inside and outside the charging zone in 2003 was too small to be interpreted as robust evidence that investor sentiment has turned for or against retail property in the charging zone.

The difference in yield movements between office locations outside the zone and the 1km annulus just within the charging boundary was also marginal. While the relatively large fall in office yields in the inner core area could be interpreted as a positive impact with investors anticipating the benefits of an improvement in public transport, in all likelihood it was more a sign of the very strong appetite of foreign investors for high value buildings in prestigious locations.

Residential property prices

To better understand the trends in residential property prices in London, analysis of the volume of residential property sales and the average residential property sale value was conducted. This analysis compared the congestion charging zone, the boundary area and the remainder of Greater London, prior to and after the introduction of congestion charging. The main data source was HM Land Registry.

It was concluded that the introduction of congestion charging has not had an identifiable effect on residential property values or volumes of residential property sales in any part of London. This reflects the fact that property prices at a local level are affected by a large number of factors and are volatile. Thus, to be identifiable, any congestion charging effect would need to be quite substantial.

Business rates

The Valuation Office Agency has dealt with 8,000 appeals against the rating assessments of properties within the charging zone in the inner London Boroughs of the City of London, City of Westminster, Hackney, Kensington & Chelsea, Newham, Camden, Tower Hamlets, Hammersmith & Fulham, and Islington. The rateable value is based on the rental value of a commercial property at a set valuation date, called the 'antecedent valuation date'. The rateable value is assessed by the Agency and used by the Local Authority to calculate the rates payable by a ratepayer.

In all these cases, professional advisers acting on behalf of the occupiers have been unable to substantiate a reduction to the assessment.

In late 2004, 2,550 outstanding appeals remained to be dealt with. Some of these outstanding appeals involve commercial car parks and the Agency is awaiting further evidence on the details of receipts to demonstrate if the congestion charge zone has affected rateable values in this class of property.

To date, therefore, the evidence presented to the Valuation Office Agency has not supported a reduction to the rateable value of properties on the grounds of congestion charging.

8.6 TfL case studies and other developments

Since the publication of the Second Annual Impacts Monitoring Report a number of other data sources have become available that help to clarify the extent of congestion charging impacts on the central London economy. These include several TfL case studies and a report by the Society of London Theatre.

Smithfield Market

A case study of Smithfield wholesale market, which is located in the heart of the charging zone, found that, a year after the introduction of charging, throughput was higher than before the introduction of the scheme. Whilst the months immediately following the introduction of charging saw a drop in throughput relative to pre-charging levels, the study concluded that this was likely to be as a result of external factors unconnected with charging.

New Covent Garden Market

New Covent Garden market, which is located outside of the charging zone in Nine Elms, is facing a number of challenges, for example the rising strength of supermarkets. However, there is no evidence from the TfL case study that in economic terms the charge has had anything more than a marginal impact on the market.

Schools

An exploratory case study of three schools has highlighted some possible congestion charging impacts on staff and pupils. Further work is currently underway to more fully assess the nature of any charging impacts on schools.

National Health Service Hospital Trusts

Many concerns held by National Health Service staff, prior to charging, have not materialised, and there has been a softening of attitudes towards the scheme. However the administration of the scheme with its reimbursement arrangements for certain categories of staff and patients is still considered a problem by some study participants. There also remains some concerns that the charge is exacerbating the pre-existing problems of staff recruitment and retention, though no evidence of this was apparent from the case study.

Theatre attendance

The Society of London Theatre has indicated that the introduction of congestion charging does not seem to have affected businesses in the West End area generally. The Society considers that as the charge ends at 6.30pm it is less of a problem for evening theatregoers than extended meter parking hours, while those attending matinee performances would probably not be driving because of parking restrictions.

Revenue and attendance data over 2003 shows no marked impact in February 2003 when charging was introduced. In contrast, the beginning of the Iraq war shortly before the introduction of charging saw both a decline in attendance and revenue, which can largely be accounted for by the reduction of international travel and tourism, particularly from North America.

9 Accidents

A full 12 months of post-charging data on reported road traffic accidents involving personal injury are now available. However, the data are still being analysed and the following summary must therefore be regarded as provisional.

The analysis below combines accidents within the charging zone with those on the Inner Ring Road, this arguably providing a more representative appreciation of the effects of charging than confining the analysis to the charging zone itself. Note also the limitation of the classification of these data to the period 07.00 to 19.00.

9.1 Accidents involving personal injury

Comparing the number of accidents within the charging zone and on the Inner Ring Road combined for the 12 months after the introduction of charging with the same period before, there was an overall reduction in accidents of 9 percent (175 accidents) during charging hours. Outside charging hours the reduction was about 4 percent (27 accidents). In the rest of London the equivalent change was a reduction of about 7 percent (2,099 accidents).

For the purposes of this provisional comparison it is assumed that there is little or no change to traffic outside the Inner Ring Road and outside of charging hours as a result of the scheme. Therefore trends in accidents outside of the zone or outside charging hours would primarily reflect 'background trends' and other initiatives, such as road safety measures. Likewise, in simple terms, any deviation from these background trends observed in the charging zone and on the Inner Ring Road during charging hours could be indicative of a congestion charging effect.

Figure 18 shows that, in general, the 'background' reductions in accidents are between 4 and 7 percent, but it may be that in smaller areas or over shorter time periods there are greater variations. During charging hours within the charging zone and on the Inner Ring Road combined, Figure 18 shows reductions in accidents of about 9 percent. This is greater than the 'background' trend, implying that congestion charging has been associated with ‘additional’ reductions in accidents of between 2 percent and 5 percent, equating to between 30 and 70 fewer accidents involving personal injury a year.

Figure 18 Total reported personal injury road traffic accidents, 2001 to 2003.

		Charging Zone	Inner Ring Road	Rest of London	Total
2001 (Feb '01 - Jan '02)	**Weekdays 07.00-19.00**	**1,644**	**528**	**18,410**	**20,582**
	Weekdays 00.00-07.00;19.00-24.00	464	207	6,269	6,940
	Weekends All Day	490	196	7,979	8,665
		2,598	931	32,658	36,187
2002 (Feb '02 - Jan '03)	**Weekdays 07.00-19.00**	**1,418**	**450**	**16,964**	**18,832**
	Weekdays 00.00-07.00;19.00-24.00	439	174	6,078	6,691
	Weekends All Day	439	204	7,588	8,231
		2,296	828	30,630	33,754
2003 (Mar '03 - Feb '04)	**Weekdays 07.00-19.00**	**1,266**	**427**	**16,222**	**17,915**
	Weekdays 00.00-07.00;19.00-24.00	402	185	5,277	5,864
	Weekends All Day	429	189	7,032	7,650
		2,097	801	28,531	31,429

9.2 Pedestrian and non-pedestrian involvement in accidents

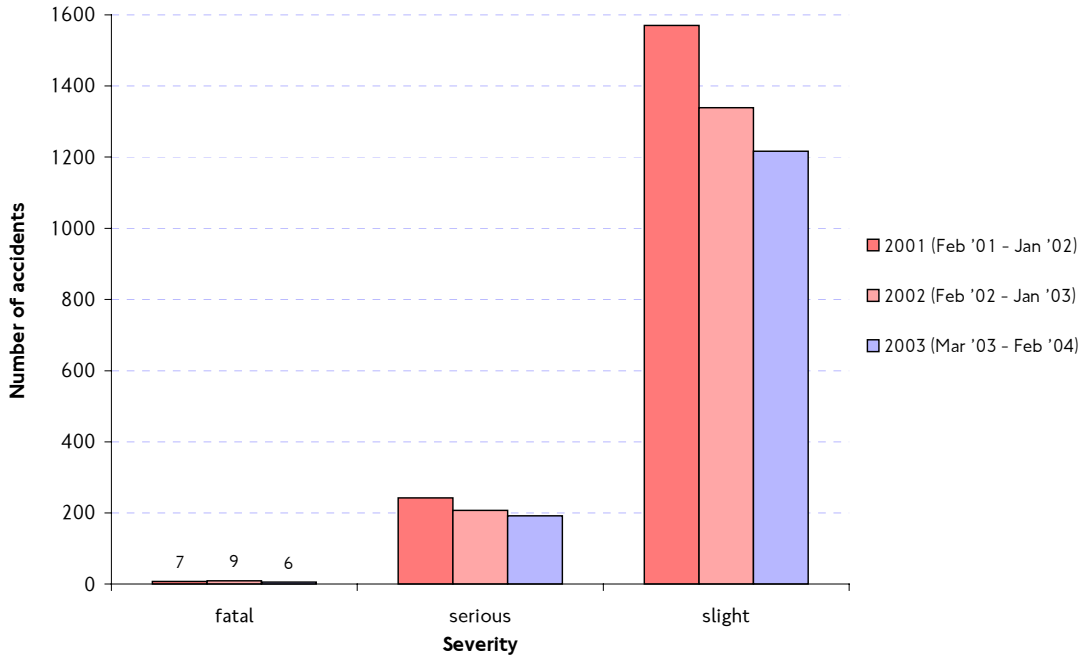
Accidents can be classified in terms of whether or not pedestrians are involved. Figure 19 indicates that, for the charging zone and Inner Ring Road combined, there has been no noticeable change in the proportion of accidents involving pedestrians and non-pedestrians during charging hours.

Figure 19 Accidents involving personal injury by pedestrian involvement, 07.00 to 19.00, 2001 to 2003.

	Charging Zone		Inner Ring Road		Rest of London	
	Pedestrian	Non-pedestrian	Pedestrian	Non-pedestrian	Pedestrian	Non-pedestrian
2001 (Feb '01 - Jan '02)	532 (32%)	1,112 (68%)	111 (21%)	417 (79%)	4,045 (22%)	14,365 (78%)
2002 (Feb '02 - Jan '03)	443 (31%)	975 (69%)	99 (22%)	351 (78%)	3,803 (22%)	13,161 (78%)
2003 (Mar '03 - Feb '04)	420 (33%)	846 (67%)	79 (19%)	348 (81%)	3,520 (22%)	12,702 (78%)

9.3 Severity of accidents

Figure 20 Reported personal injury road traffic accidents by severity, on the Inner Ring Road and within the charging zone, 07.00 to 19.00, 2001 to 2003.



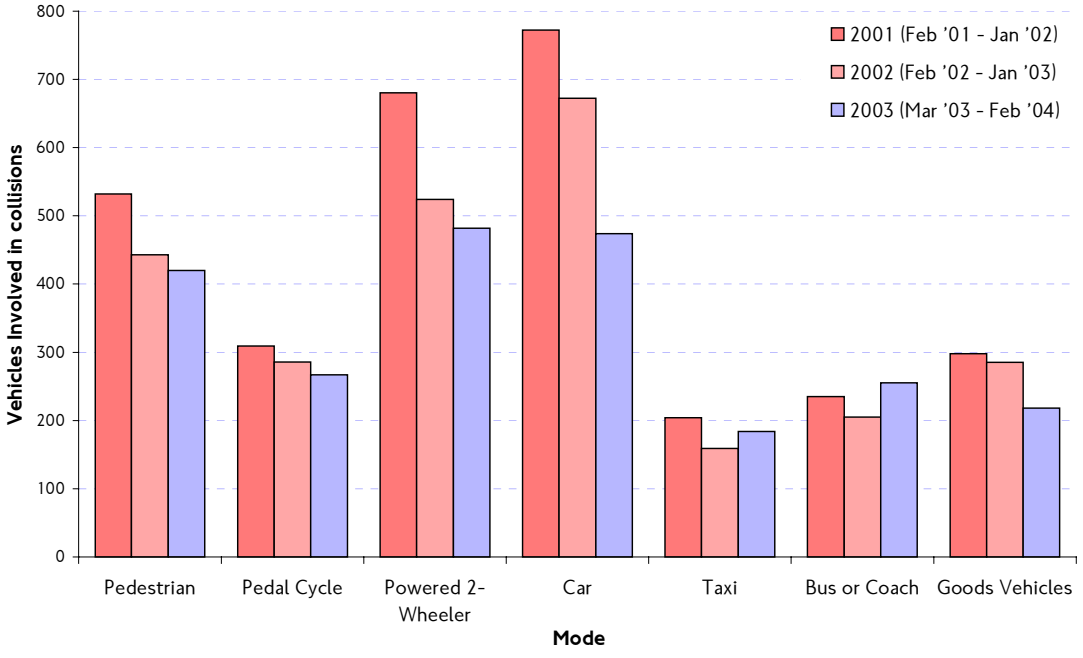
It can be seen from Figure 20 that, in and around the charging zone over the 12 months since charging, there has been a decrease in the number of accidents for each level of severity, compared to the same periods before charging.

9.4 Accident involvement by mode

Figure 21 shows that, in the twelve months since charging was introduced, there has been a decrease in the number of cars involved in accidents. This is proportional to the reduction in the number of cars entering the charging zone. Likewise, the numbers of buses and taxis involved in accidents has increased in proportion to increases in these vehicle types entering the zone. However, the decrease in goods vehicles involved in accidents is over twice the reduction in numbers entering the zone.

The numbers of powered two-wheelers and pedal cycles involved in accidents have decreased, by 8 percent and 7 percent respectively, despite a combined increase of 15 percent in numbers of these entering the zone since charging. Similarly there has been a decrease in the number of pedestrian casualties involved in accidents.

Figure 21 Collision and casualty involvement by vehicle type within the charging zone, 07.00 to 19.00, 2001 to 2003.



10 Air quality

The Second Annual Impacts Monitoring Report showed that the traffic changes (volumes, vehicle mix and speeds) resulting from congestion charging had led to estimated reductions of about 12 percent in emissions of NO_x and PM_{10} from road traffic within the charging zone. Emissions on the Inner Ring Road were shown to be broadly unchanged.

Given the relative stability of traffic levels during 2004, these emissions benefits will have been broadly sustained. A further update on emissions will be provided as part of the Third Annual Monitoring Report.

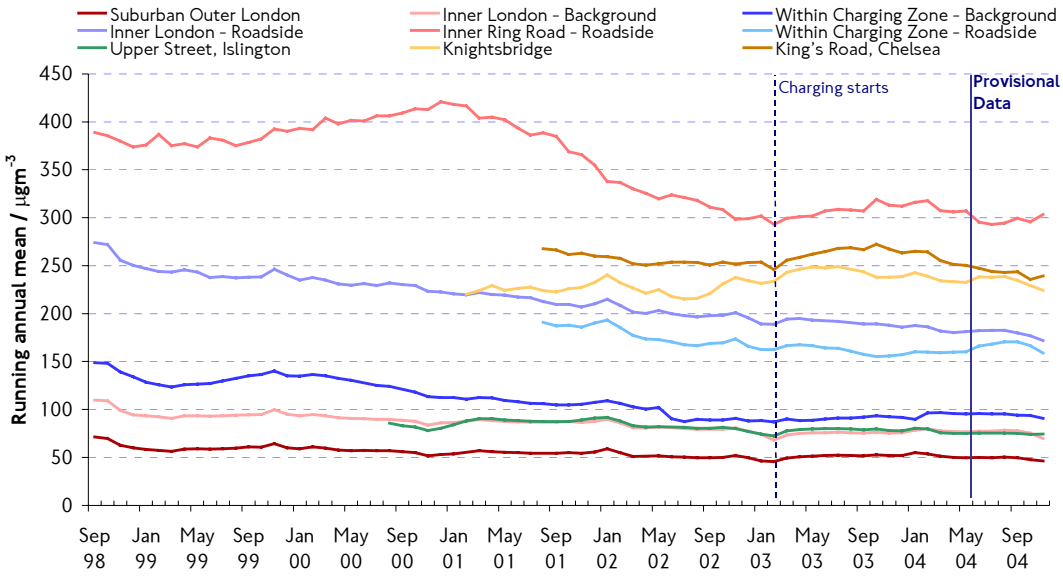
The report also examined data from air quality monitors located in and around the charging zone. It concluded that the emissions changes from charging were not yet 'visible' in the monitored data (an outcome that was not unexpected), and – importantly – that observed air quality trends across London in 2003 closely reflected 'external' influences such as the statistically-unusual weather that prevailed for much of the year.

This section updates the position on monitored air quality to late summer 2004.

10.1 Nitrogen oxides

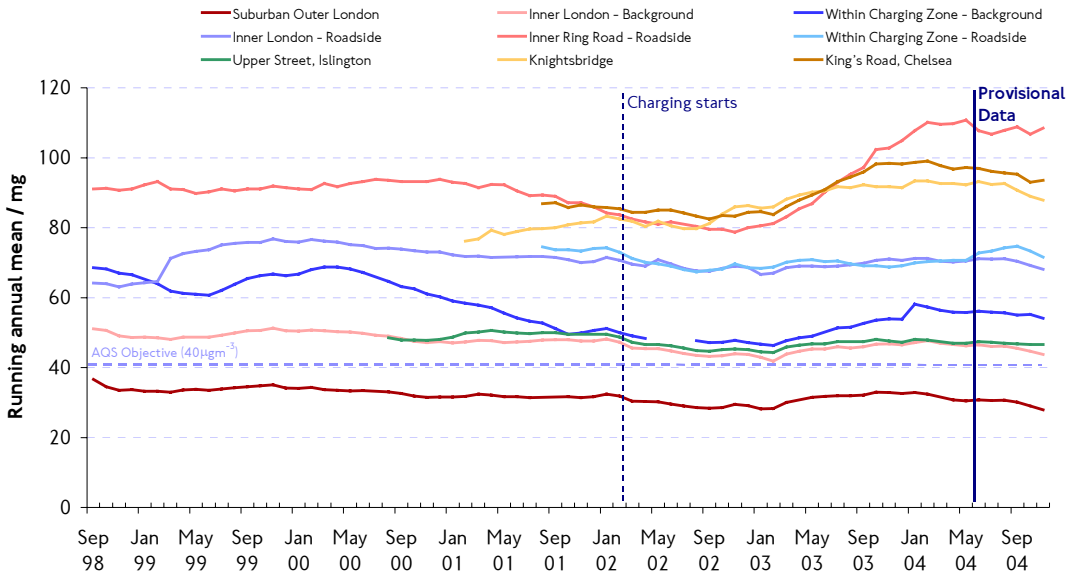
The Second Annual Impacts Monitoring Report described how the positive effects of a general, London-wide decrease in emissions of NO_x from road traffic were being countered by other factors producing an increase in NO_2 concentrations. Figures 22 and 23 extend graphics previously presented to late 2003 for NO_x and NO_2 respectively (note provisional data from May 2004).

Figure 22 Trends in running annual mean NO_x concentrations at selected air quality monitoring sites.



For NO_x, the overall trend throughout London is one of continuing steady decline (running annual mean concentrations). There is no evidence of an identifiable 'congestion charging impact' for NO_x in terms of the within-zone indicator sites responding directly to reduced traffic levels.
Despite the small overall reductions in NO_x concentrations, a number of sites across London, including the Inner Ring Road, are showing increases in NO_2 which do not appear to relate to traffic volumes, congestion or the weather. This is currently being investigated further.

Figure 23 Trends in running annual mean NO_2 concentrations at selected air quality monitoring sites.



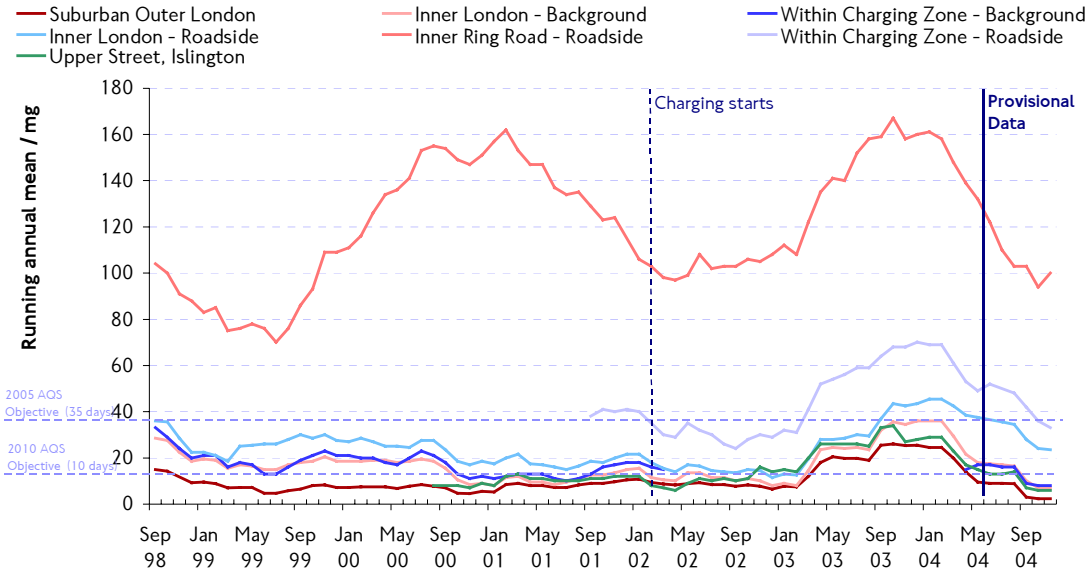
10.2 Particulate matter (PM_{10})

In the Second Annual Impacts Monitoring Report it was described how unusual meteorological conditions had been primarily responsible for the large number of PM_{10} 'episodes' in London during 2003. This led to increases in running annual mean PM_{10} concentrations throughout the region, and had a similar, but more exaggerated effect on running annual mean 'exceedence days' in relation to the air quality Objective.

Figure 24 updates the 'exceedence day' graphic presented previously. It is seen that the elevated levels experienced throughout 2003 have reduced substantially into 2004, with prevailing values now close to the long-term trend for PM_{10} exceedences. This largely corresponds with the meteorology experienced during 2004, which has been closer to long-run averages and less conducive to the import of particulate from elsewhere.

Again, there is no evidence, either in terms of concentrations or exceedence days, of identifiable differences between within-charging-zone sites and those outside that might reflect the introduction of congestion charging.

Figure 24 Trends in running annual mean PM_{10} concentrations at selected air quality monitoring sites.



Overall, therefore, whilst congestion charging is calculated to have had a beneficial effect on road traffic emissions within the charging zone, it has not been possible to identify a positive effect on concentrations of key pollutants at this stage.

11 Boundary Case Study

During the development of the scheme, a number of possible issues were identified relating specifically to the boundary area – including the Inner Ring Road itself and the area beyond. These ranged widely across traffic effects associated with diversion around the boundary of the charging zone, through to economic and social effects associated with the charging zone boundary itself, to public transport and environmental consequences arising from the changed travel and activity patterns.

A study was developed to look at these issues in detail in the context of a case study area adjacent to the charging zone boundary in the boroughs of Islington and Hackney. This section reviews key findings to date from this ongoing work.

11.1 The boundary case study area

The Boundary Case Study Area was broadly bounded by: Upper Street (Islington) to the west; Balls Pond Road and Essex Road to the north; Kingsland Road (Hackney) to the east, and the Inner Ring Road (City Road) to the south. It included the area inside the charging zone immediately south of City Road.

11.2 Traffic patterns

Overall traffic changes in the case study area are closely in line with those reported elsewhere in the monitoring work. Comparing annualised estimates for 2002 (before charging) and 2003 (after charging):

- 18 percent fewer vehicles (all types) crossed into or out of the charging zone during charging hours across the portion of the charging zone boundary in the case study area; compared to 16 percent across the whole of the charging zone boundary. Note: average of inbound and outbound flows.
- Potentially chargeable vehicles (cars, vans and lorries) decreased by 30 percent (compared with 28 percent across the whole of the charging zone boundary, average of inbound and outbound flows).
- Radial traffic approaching the Inner Ring Road (both directions) reduced by 6 percent (all vehicles) and 11 percent (potentially chargeable vehicles), comparable to that measured across the whole of the extended TfL central cordon (wholly outside of the charging zone).
- Overall traffic volumes on the City Road section of the Inner Ring Road showed little change as an immediate response to charging, but the introduction of the Shoreditch traffic management scheme at the eastern end of the study area has significantly affected the operation of the Inner Ring Road in this locality.

- There is no evidence of detrimental increases to the flow of orbital traffic through the study area itself. However, the implementation of several local traffic management schemes within the borough of Islington may have significantly changed the pattern of traffic flows in the case study area. Surveys capturing these changes are currently undergoing analysis and will be reported in the Third Annual Monitoring Report.

11.3 Congestion

Changes to traffic arising from the introduction of charging but outside of the charging zone itself could potentially affect levels of congestion in the case study area, alongside other factors such as capacity reductions resulting from traffic management schemes.

The balance of evidence from the case study area is of stable or slightly-deteriorating congestion. It is thought that this results from a combination of relatively-stable or reduced traffic levels combined with traffic management and other infrastructure works (most notably the Shoreditch Triangle scheme) undertaken during 2003.

11.4 Public transport

The case study area has benefited from large-scale enhancements to the bus network, partly corresponding to the introduction of charging. As a result of this additional capacity, former car trips displaced by charging and external factors such as the prolonged closure of the Central line, bus patronage in the case study area has increased. Overall, bus capacity is keeping pace with demand and there is continued monitoring of occupancy levels at the local scale. There is no evidence of adverse changes to Underground patronage.

11.5 Business and economic effects

The business mix within the case study area is rather different from the charging zone as a whole, comprising a larger proportion of small/medium-sized customer-facing enterprises, such as retail. A specific survey focused on these businesses, involving 50 in-depth interviews. More general information on possible 'boundary effects' is available from the 'just inside' and 'just outside' components of the main business survey, involving general samples of 140 and 70 businesses respectively. Findings suggest that:

- Most businesses, whether in the case study area or the wider boundary area, report no significant change to business performance between 2002 and 2003.
- Businesses in the case study area differ from those in the charging zone in being relatively more likely to cite congestion charging as a key influence in their business performance, and being correspondingly less likely to cite general economic conditions.

- Congestion charging appears to have increased running costs for some businesses in the case study area, but there is no indication that this has been the case for the majority of businesses.
- The majority of businesses in the case study area or boundary annulus more generally continue to support congestion charging as a policy, so long as it is accompanied by continued investment in public transport.

11.6 Social impacts

The boundary case study included in-depth research with residents as part of the wider social impacts study referred to above. This was designed to characterise the detailed effects of the scheme on individuals and households. This data, which is now being analysed in detail, will provide the basis for understanding the scope, scale and direction of any effects, and can be set against prior expectations of the residents involved. Some initial findings are that:

- Changes to travel behaviour reported by case study area residents confirm the overall direction and magnitudes of aggregate travel behaviour change reported elsewhere in the monitoring work. It is also clear that a very wide range of factors other than congestion charging have been involved in shaping residents' travel patterns between 2002 and 2003.
- In relation to selected 'example' journeys before and after the introduction of charging, study area residents report reduced traffic congestion and improved public transport.
- It is difficult to isolate the perceived impacts of charging on the local neighbourhood. This is because of the wide range of other factors involved in determining local 'quality of life', and the fact that many of the changes most closely associated with congestion charging are perceived – in roughly equal measure – to have both positive *and* negative consequences by different people.

11.7 Accidents and air quality

Data from the Upper Street air quality monitoring site suggests that air quality in the case study area has evolved in a very similar way to the rest of inner London. There is no evidence of changes in NO_x, NO_2 and PM_{10} levels coinciding with, or that could be attributed to, the introduction of congestion charging.

The number of accidents in the case study area has continued its recent trend of year-on-year decline, paralleling most other parts of London. There is no evidence from the data of emerging detrimental trends that could be associated with, or attributed to, the introduction of charging.

11.8 Conclusions

The overall picture to emerge so far from the boundary case study is of broadly neutral effects. This overall finding is not unexpected, given that the

case study area is very largely outside of the charging zone. The general absence of 'boundary-related' problems so far has been reflected elsewhere in the monitoring work, but it is important to keep this under review as more data emerges. In particular, this interim review of findings from the boundary case study has identified several issues for further specific investigation during 2005, in particular the impacts of local traffic management schemes, issues relating to bus capacity and effects on 'boundary' businesses.

12 Scheme Operation

The operation of the scheme has improved significantly during 2004 as demonstrated across a range of access, quality and customer satisfaction measures.

12.1 Service provision and Capita's performance

The foundation of the improvements to the scheme are the revisions to the contract with the main service provider, Capita, which were introduced in stages between September 2003 and April 2004.

The changes, which focused on improving the quality of operations across the board, have for example resulted in:

- Improved accessibility to the call centre. There are now few problems in getting through to the call centre. The time that a customer has had to wait to get through to the call centre has averaged 11 seconds and been consistently below 20 seconds since February 2004. Similarly the number of abandoned calls has been below 1 percent of total calls since January 2004.
- Tighter monitoring of calls received by a dedicated Quality Monitoring Team.
- Implementation of a package of staff training enhancements, which include checking the syntax of Vehicle Registration Numbers (VRMs) to reduce errors which may result in the issue of Penalty Charge Notices (PCNs), and checking each VRM against the Driver and Vehicle Licensing Agency (DVLA) database.
- A reduction in the number of errors made in call centre payment processing – errors now account for 0.01 percent of all payments processed.
- Introduction of mystery shopping in the call centre and in retail outlets where the congestion charge can be purchased.
- Introduction of improved mailroom procedures to track and scan each item of mail received, including rejected discount applications.
- Improvements to the Blue Badge and resident registration application process.
- Introduction of improved finance processes, including banking of payments and more timely refunds.

12.2 Congestion charge payments

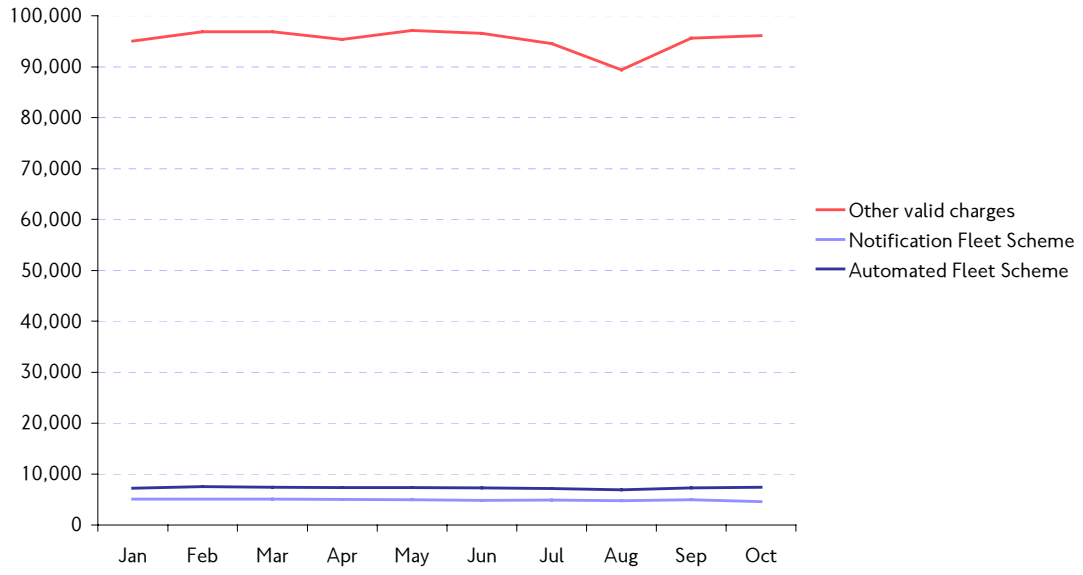
Charge payments (excluding fleet payments) have remained very stable throughout 2004 at around 96,000 per day. This is very similar to the level prevailing throughout 2003. There are only minor seasonal variations.

Charge payments for both the Notification and Automated fleet schemes have also remained stable throughout 2004, at an average of 5,000 payments per

day for the Notification scheme and 7,000 payments per day for the Automated Scheme.

Of the payments, 17 percent are made in respect of vehicles registered for the 90 percent residents' discount and 83 percent are made in respect of other vehicles. The proportions are very consistent.

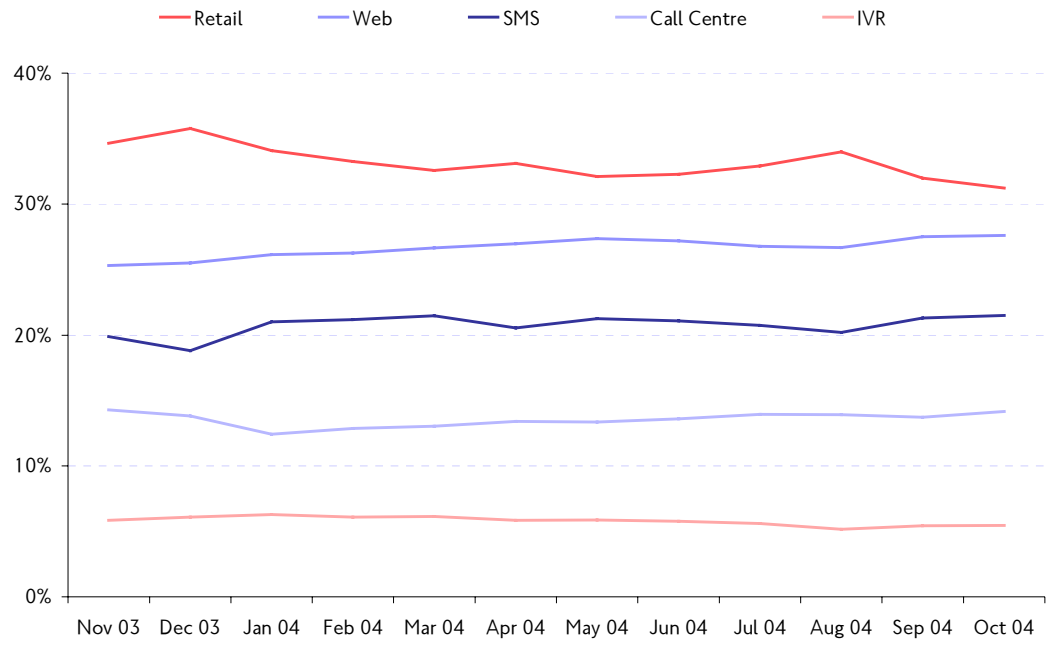
Figure 25 Average number of valid charges on each charging day, 2004.



The volume of charges by payment type also remains very consistent with 68 percent of full charge payments being 1-day ('daily'), 11 percent being 5-day ('weekly'), 9 percent being 20-day ('monthly') and 12 percent being 252-day ('annual'). Of the resident discount payments, 19 percent are 5-day (weekly), 22 percent are 20-day (monthly) and 59 percent are 252-day (annual). These percentages have remained almost unchanged throughout 2004.

While the payment split is well established, since the start of the scheme there has been a consistent slow pattern of migration between payment channels. The retail channel, which at the start of 2004 was used by 35 percent of customers, is now used by only 31 percent. This decline corresponds to the growth of the web and mobile phone SMS text message payment channels (Figure 26). At the current rate of migration, web will overtake retail as the most popular channel in early 2005.

Figure 26 Charge transactions by channel.



The growth in the mobile phone SMS text message payments is driven by the speed and simplicity of the service. Over 90 percent of SMS users are satisfied with the service compared to 80 percent overall.

Payment of the charge via the contact centre has remained stable over the year with a small increase for payments by an agent and a small decline for payments via Interactive Voice Recognition.

The breakdown of payments through retail outlets has remained consistent with 91 percent made through PayPoint machines located in shops and petrol stations. On average over the last twelve months, some 23 percent of PayPoint retail payments are made at petrol stations and 41 percent at other PayPoint outlets inside the charging zone.

The remaining 9 percent of retail payments are made using the Metric Self Service terminals mostly located in car parks in and around the congestion charging zone.

12.3 Quality of service

Call centre results have been good throughout 2004, and show a marked improvement over the performance in 2003, prior to the implementation of the Supplemental Agreement. Average queuing times have consistently been below 20 seconds during 2004. As a consequence, the levels of callers abandoning or unable to get through to the call centre have been well below 1 percent throughout 2004. The volume of calls handled by the call centre remains very consistent at between 250,000 and 300,000 calls a month. Some 70 percent of these are payment calls, with 30 percent of calls being enquiries and complaints.

The major focus during 2004 has been to improve the quality of service particularly within the call centre. TfL has worked with Capita to implement improved processes, backed up by enhanced training and management of increased numbers of staff. The impact has been measured through increased recording and monitoring of both calls and letters, and the implementation of a 'mystery shopping' regime for the call centre.

The quality of service has improved significantly. This has been reflected in complaint levels reducing by over half, and customer satisfaction increasing to 75 percent for those making an enquiry (up from 49 percent in March 2004) and 87 percent for those making a payment (up from 81 percent).

Key further improvements being progressed include improving the functionality and usability of the www.cclondon.com website, speeding up the automated interactive voice recognition service and simplifying the registration and renewal procedure for residents' discount applications.

As a result of charge payer and stakeholder requests and following consultation, the threshold for the Automated fleet scheme was reduced from 25 to 10 vehicles in December 2004. Further improvements to the fleet schemes are planned for 2005.

In addition, from December 2004, there is no charge on the three previously charged days between Christmas and New Year's Day.

12.4 Registrations and discounts

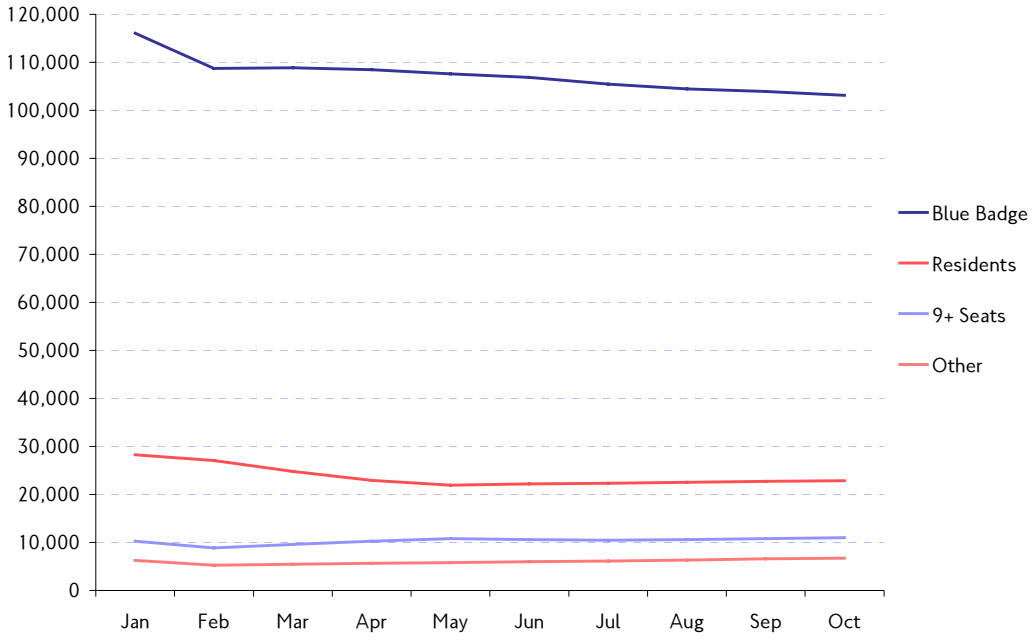
Registrations for fleet accounts have remained stable in 2004, with 950 Automated scheme accounts and almost 800 Notification scheme accounts. The number of activated accounts for both schemes has also remained steady throughout the year. In October 2004, the vehicles using the Notification fleet scheme numbered some 4,500 per day and the number of vehicles using the Automated fleet scheme numbered some 7,300 per day.

To be eligible for the Notification scheme, a minimum of 25 vehicles in a fleet must be registered. This scheme is open to all vehicle types, but is primarily aimed at fleets of cars.

From December 2004, to be eligible for the Automated scheme a minimum of 10 rather than 25 commercial vehicles in a fleet must be registered. This scheme is open to light vans, light goods vehicles and heavy goods vehicles, based on body type, but not cars. It is expected that the volume of fleet vehicles will increase substantially in 2005 as a result of this reduction in the eligibility threshold.

Active residents, 9+ seater and other (mainly alternative fuel) vehicle discounts have decreased at the end of the first year of operation as some users did not renew their discounts. Since then, there has been a steady increase of new discount holders as a result of new applications for the discounts. The trend in Blue Badge discounts reflects the non-renewal of a proportion of these discounts, coupled with improvements to the registration process.

Figure 27 Discounts by type, 2004.



13 Enforcement

As with charge payments, enquiries and registration services the quality of the enforcement service has improved significantly during 2004. This again is as a result of better chargepayer understanding of the scheme, improved processes, IT systems and management, additional and better trained staff, closer monitoring and a tough contract performance regime.

13.1 Background

There are no tollbooths or barriers around the congestion charging zone and no paper tickets or licences. Instead, drivers or vehicle operators pay to register their vehicle registration number on a database for journeys within the charging zone during charging hours for single or multiple charging days. Receipts (or receipt numbers) are available and on occasion are vital for proving payment of the charge for the correct vehicle on the date of travel.

Cameras at every entry and exit point, and on key routes within the zone, capture images of vehicles entering and travelling within the charging zone during the hours of operation (07.00 to 18.30) every charging day. The images are continually fed through to a central processing centre where Automated Number Plate Recognition Systems (ANPR) interpret the number plate of every vehicle captured by the cameras.

Once a registration number has been interpreted a complex process of confidence measurement of the images takes place during the day. At the end of the day, only the best, highest quality interpretation is used for checking against the database of paid, exempt, 100 percent discounted or fleet vehicle registrations. Once a match against the database is made the vehicle details and the images are automatically removed from the database. Images of all vehicles where there is no matching record on the database are then sent through to the next stage of the process.

By 02.00 on the next working day after the charging day, all the vehicle registration numbers for those vehicles where no match was made are sent to the DVLA. By 07.00 on the same day the Agency supply TfL with the name and address of the registered keeper and vehicle details including the make and model of the vehicle.

The final stage of the process before issue of any Penalty Charge Notice (PCN) involves a 100 percent manual check of all the images of vehicles identified as possible evaders of the congestion charge. Trained staff check that the ANPR systems have correctly interpreted the number plate. If there is any doubt that they have not, the case is rejected for re-interpretation or deletion.

Failure to pay the congestion charge or pay or register correctly for a discount results in a PCN of £100 being issued to the registered keeper of the vehicle as supplied by the DVLA. This amount is reduced to £50 for prompt payment

within 14 days. Failure to pay the PCN within 28 days results in the amount due being increased to £150.

13.2 System improvements

There have been a significant number of changes and improvements to the enforcement process and operation during 2004. These include:

- The inclusion of images of the vehicle on the PCN itself from July 2004. This has led to increased awareness and understanding by the keeper of the vehicle in relation to the offence committed. It is also useful in highlighting the very small percentage of processing mistakes, such as incorrect interpretation of the number plate, that are not identified in the manual checking process. Since its introduction there has also been a 50 percent reduction in the number of Data Protection Subject Access Requests from keepers wanting to see copies of the images of their vehicle and an increased proportion of PCN payments at the discounted rate.
- The inclusion of a short, clear and simple information leaflet with the PCN from July 2004, regarding the enforcement process. It explains why the penalty was issued, how to pay or make a representation and the implications of no action. This improvement was introduced as a result of comments received on the complexity of the PCN and the need to include a significant amount of legal 'jargon' to comply with the Regulations that govern the enforcement process. Since its introduction there has been an increased proportion of PCN payments at the discounted rate and an on-going reduction in representations and appeals. There has also been an increase in payments made through the Internet, which is highlighted on the information leaflet as being a convenient way of paying PCNs.
- Continuing review of enforcement processes, staffing levels and systems improvements to ensure that the processing of representations and appeals is fairly, efficiently and consistently applied.
- Introduction of a dedicated team of enforcement staff responsible for dealing with escalated calls from the call centre regarding more complex enforcement issues such as appeals, and bailiff and on-street enforcement action. This service has resulted in the provision of more accurate information and guidance to customers of the enforcement process and the steps required to resolve outstanding issues.
- Introduction of dedicated Hire and Lease Company Teams responsible for processing representations, appeals, complaints and queries from hire and lease companies who are registered keepers of vehicles issued with PCNs. This has led to improvements in the level of understanding within the hire and lease companies, increased compliance with the evidence required from hire companies to transfer liability to the hirer of the vehicle at the time, and a reduction in the number of appeals made to adjudicators from such organisations.

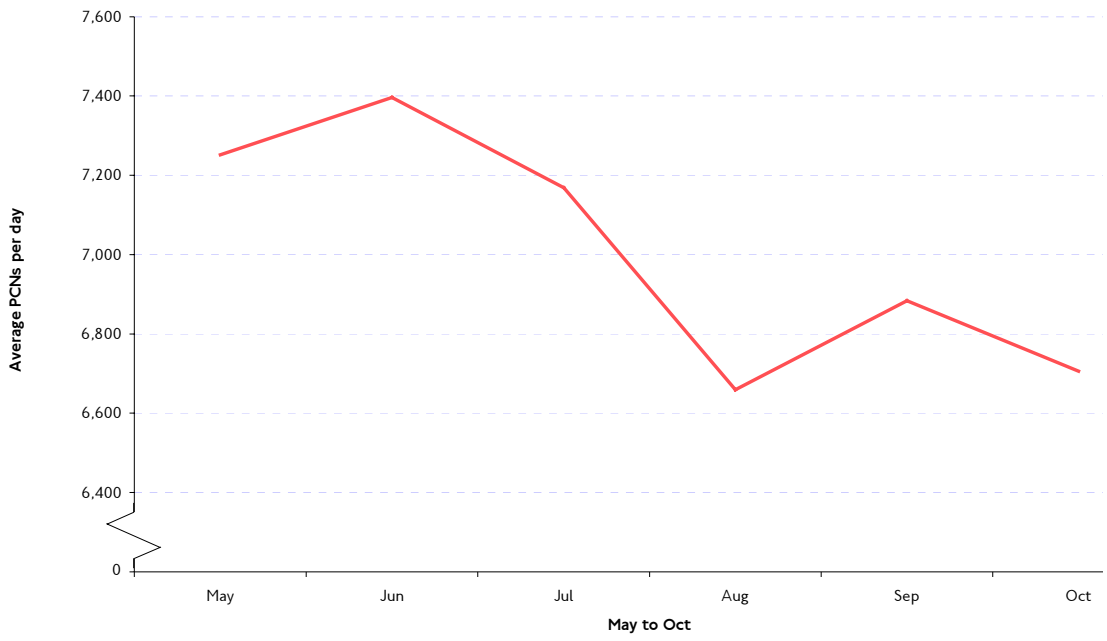
13.3 Penalty Charge Notice (PCN) issue and payments

The number of Penalty Charge Notices (PCNs) issued has gradually reduced and compliance improved over the course of 2004 as the figure below illustrates. The number of PCNs issued per charging day has fallen from some 8,000 in March 2004 to some 6,600 in November as a result of various factors including:

- Improvements to the services as detailed above;
- Improved awareness by customers of the payment and enforcement processes, common mistakes and awareness of the scheme;
- Increase in the Penalty Charge from £80 to £100 in July 2004.

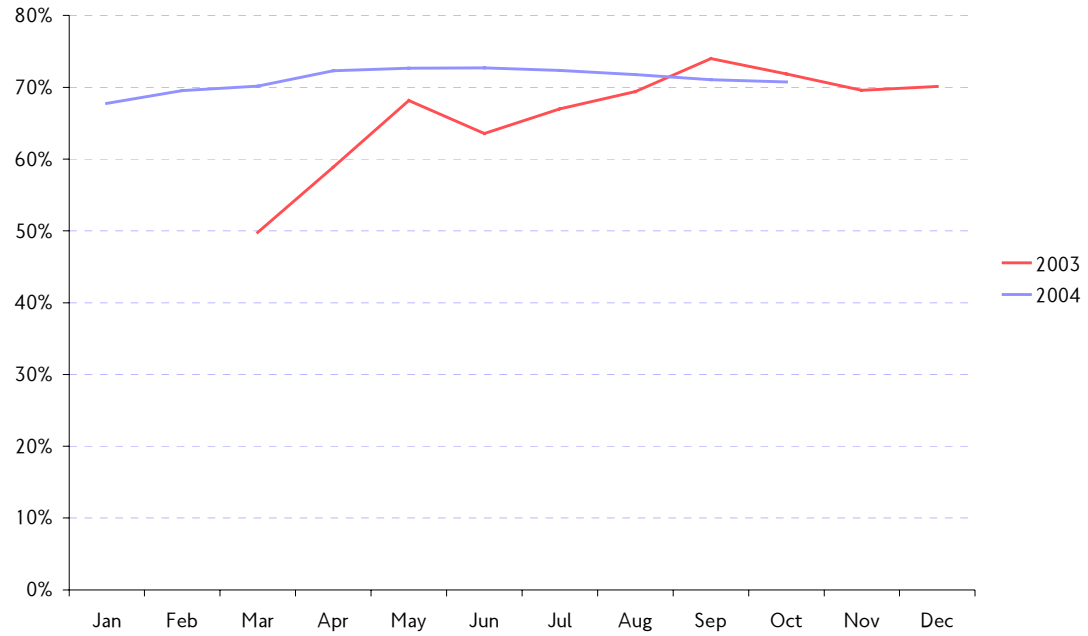
TfL expects that this general trend of improved compliance will continue with a further reduction predicted as a result of the reduced fleet threshold and, subject to consultation and Mayoral approval, the introduction of the proposed further enhancements to the fleet scheme and discounts for monthly and annual payments.

Figure 28 Average daily PCNs issued, 2004.



The percentage of recovered PCNs and level of payment have continued to increase since the start of the scheme. Average PCN payment rate for PCNs issued between March 2004 and November 2004 is 71 percent. Average payment values are some £49 for PCNs issued between January and July 2004 (£80 full rate) and currently some £57 for PCNs issued between August and November 2004 (£100 full rate).

Figure 29 PCNs paid as percent of PCNs issued per month.



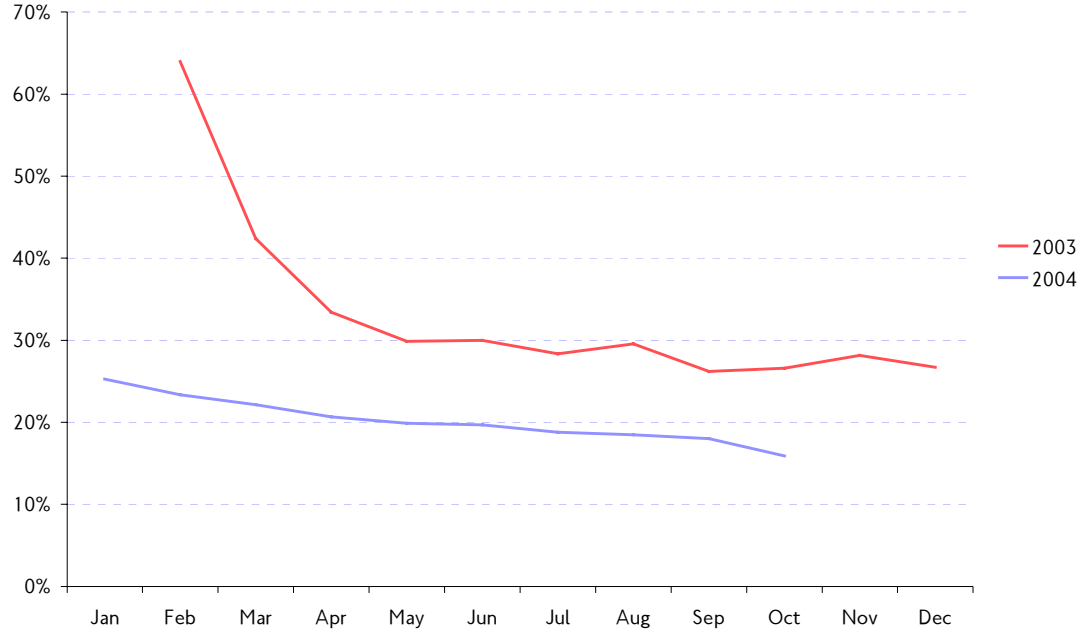
13.4 Representations made against PCNs

Every recipient of a PCN has the right to challenge its issue through a written representation to TfL. A representation must be made within 28 days of the date of receipt of the PCN and must be made by or via the written permission of the registered keeper of the vehicle.

In the first year of congestion charging the key reasons for representations against PCNs were as a result of errors by chargepayers or Capita in paying the charge for the correct vehicle registration number or date of travel or incorrectly registration or processing discounts or exemptions.

The percentage of representations made is now significantly lower than in 2003 from a high of 64 percent to current levels of 20 percent or lower demonstrating improved processing by Capita and a better understanding of the scheme and the enforcement process by chargepayers. The current key reasons for representations relate to the transfer of vehicle ownership and hire car companies transferring liability to the hirer. In addition, despite the improvements and ongoing public information campaigns there is still a sizeable proportion of representations made as a result of errors. TfL continues to seek to reduce these instances.

Figure 30 Percent of representations made against PCNs issued.



13.5 Appeals

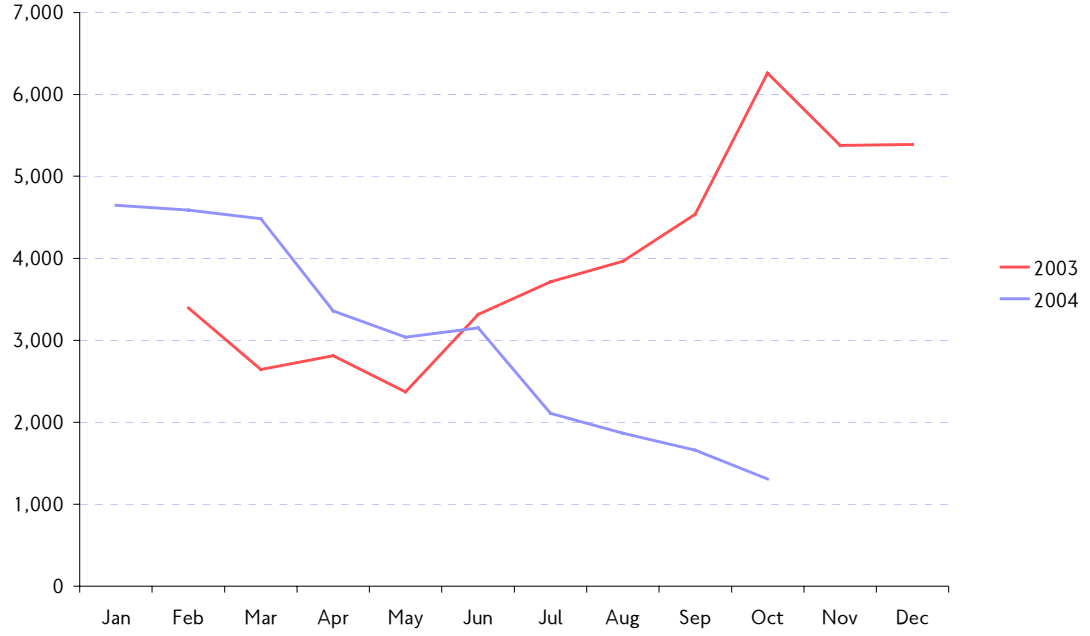
The keeper of any vehicle related to a representation that TfL has considered but rejected may appeal against this decision to the Parking and Traffic Appeals Service.

As with representations, the improvements delivered as a result of the Supplemental Agreement, on-going improvements and increased quality monitoring have had a significant impact on the volume of appeals being made and appeals 'lost' at hearings by TfL.

The volumes of appeals received has consistently reduced from a high of around 3.8 percent of PCNs issued in October 2003 to a rate of 2.0 percent in October 2004. The percentage of appeals 'won' by TfL has also improved and is currently consistently 70 percent or higher.

TfL will continue to seek to improve the quality of the enforcement service and respond to issues that emerge from adjudicators' decisions on appeals. In addition, as part of plans to increase the efficiency of the scheme TfL is currently working with PATAS on the development of an electronic interface to transfer all appeals packs and thus improve the service and reduce the administrative burden. This is due to be implemented in 2005.

Figure 31 Appeal volumes received by PCN contravention date.



13.6 Debt collection and persistent evasion

Where a PCN remains unpaid and there is no outstanding representation or appeal then the debt is registered at County Court and a warrant passed to bailiffs for recovery of the debt. The registration process does not result in a County Court Judgement or contribute to credit history or ratings.

As at December 2004 some 316,000 warrants had been issued to bailiffs for recovery of the outstanding debt. TfL have four bailiff companies who, through the warrant, have the power to seize goods to the value of the debt outstanding plus a defined set of additional fees incurred in the recovery of the debt. Since the start of congestion charging in February 2003 an average of 13 percent of warrants issued have resulted in payment – an increase of 4 percent since February 2004. It is expected that the recovery rate will continue to improve and stabilise at around 20 percent over the course of 2005.

In addition to bailiff recovery, TfL also carried out on-street enforcement using powers provided though the Regulations to clamp and remove vehicles that are persistent evaders of the congestion charging scheme. A persistent evader is defined as a vehicle that has three or more outstanding PCNs with no representation or appeal outstanding. Currently around 200 vehicles are clamped and/or removed every month. The on-street enforcement service is also effective in the enforcement of vehicles that are not registered with the DVLA.

TfL's ability to identify persistent evaders and enforce against them has also improved over 2004. Up to the end of December 2004 TfL had clamped or removed 1,537 vehicles resulting in the recovery of over £850,000 in otherwise 'lost' revenue.

In addition to the clamping and removal of persistent evaders TfL and its scheme providers are involved in monthly on-street ‘filter’ operations with the Metropolitan Police and other enforcement agencies such as the DVLA and the Vehicle Inspectorate. These exercises co-ordinate intelligence led enforcement activities to target vehicles that are of interest to TfL, the Police and the other enforcement agencies.

During 2004, 29 such operations were carried out that resulted in the identification of 170 persistent evaders, 31 tampered number plates, 11 vehicles driving without insurance, eight vehicles being driven without insurance and 282 vehicles without road fund licence. The exercises have also proven helpful to the Police in the identification of more serious criminal activity such as burglary, assault, drug-related crimes and weapons. Through the experience gained in running such activities TfL expects the joint exercises to continue throughout 2005 with increasing effectiveness.

TfL has recently requested delegated powers from the DVLA to take enforcement action against vehicles that are found on-street without tax. Given that a large percentage of these vehicles are likely to be unregistered with the DVLA or have incorrect address details held, such enforcement is expected to have a long-term positive impact on the accuracy of the DVLA database. In turn, there is a positive impact on the ability of TfL and Local Authorities to issue PCNs to the correct keepers of vehicles. It is anticipated that TfL will commence operating these powers in March 2005.

14 Monitoring programme

The monitoring programme continues to proceed according to the broad framework set out in the *First Annual Impacts Monitoring Report*. For the programme going forward, greater emphasis will be placed on understanding the economic impacts of charging, and developing monitoring strategies in respect of proposed extensions and variations to the central London scheme.

If you have any queries relating to this report or the wider impacts monitoring programme – please see the TfL website (www.tfl.gov.uk) or e-mail TfL (ccsmonitoring@tfl.gov.uk).