Congestion Charging
6 months on

MAYOR OF LONDON

Transport for London

BACKGROUND AND PURPOSE OF THIS REPORT

This report provides information about the impacts and the operation of the central London congestion charging scheme introduced in February 2003.

In general the report draws on the experiences of the first six months operation of the scheme, though some more recent data are also presented. It has been prepared to meet the wide-ranging demands for information about the scheme.

It supersedes the report *Congestion Charging: Three Months On*, published in June 2003 by Transport for London (TfL).

Fuller details of the impacts of the scheme will be provided in the *Second Annual Monitoring Report*, expected to be published in Spring 2004.

The *First Annual Monitoring Report - conditions before charging* was published in June 2003. It set the scene for subsequent reports and describes the monitoring programme in detail. The report can be purchased from the London Transport Museum (telephone +44 (0) 20 7379 6344) and is available at www.tfl.gov.uk/tfl/cc_monitoring.shtml.

The scheme – including its associated traffic management and complementary public transport measures – is kept under continual review by TfL. 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.

Readers of this report need to be aware that a number of factors other than congestion charging have affected travel to central London on all modes of transport – these include a slowdown in the economy, the effects on tourism of the war in Iraq and other influences, and the temporary closure of the Central Line. This complicates the interpretation of monitoring information. This report however, clearly demonstrates the way in which the scheme has improved traffic and transport conditions in and around central London.

Readers should also be aware that in August 2003 changes were made to TfL's contract with Capita, the organisation responsible for much of the day-to-day operation of the scheme. The revised contract is expected to result in improved enforcement and performance in a range of customer-facing services, with the initial enhancements being noticeable from late October 2003.

While many of the traffic effects of the scheme are becoming obvious, the full effects may well take longer to emerge against the background trends, and operational improvements that are currently being made. Irrespective of this, the overall picture is very encouraging. The scheme has met its key objective – reducing congestion in central London – and many of the possible adverse impacts forecast by some observers have not materialised.

This report is available at www.tfl.gov.uk/tfl/cc_intro.shtml or by calling 020 79414974.

Transport for London **23 October 2003**

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1 INTRODUCTION AND SUMMARY

1.1 The central London congestion charging scheme was introduced in February 2003. The primary aim of the scheme is to reduce traffic congestion in and around the charging zone. The scheme is intended to contribute directly to four of the Mayor's ten priorities for transport as set out in his Transport Strategy published in July 2001:

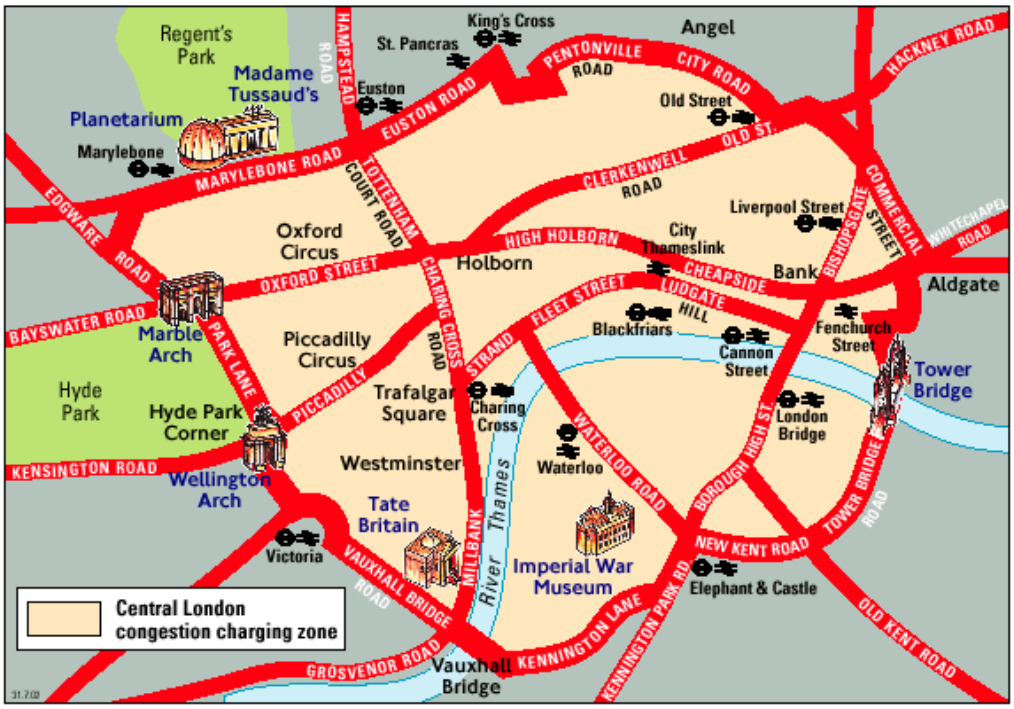
- to reduce congestion
- to make radical improvements in bus services
- to improve journey time reliability for car users
- to make the distribution of goods and services more reliable, sustainable and efficient.

1.2 The scheme is also intended to generate net revenues to improve transport in London more generally.

1.3 The congestion charge is a £5 daily charge for driving or parking a vehicle on public roads within the congestion charging zone between 7.00am and 6.30pm, Monday to Friday, excluding weekends and public holidays.

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

Figure 1
The congestion charging zone



1.5 The Inner Ring Road forms the boundary of the congestion charging zone, and no charge applies to vehicles using that route. Certain categories of vehicle, notably taxis, motorcycles and buses, are exempt; and certain categories of vehicle users can register for discounts – for example residents of the congestion charging zone can register for a 90% discount, and disabled Blue Badge holders are eligible for a 100% discount.

1.6 TfL and the Mayor are committed to a five year programme of monitoring – for one year before the start of charging and four years after – to ensure that the impacts of the scheme are understood and that modifications can be considered if there is evidence that these would be appropriate.

1.7 The aim of the five-year programme of monitoring surveys and studies is to obtain a robust and comprehensive understanding of the changes brought about by the scheme, in the context of other factors affecting traffic, congestion and wider aspects of life in London. An assessment of the social, economic and environmental effects of congestion charging will not be available until Spring 2004, although this report includes some preliminary information on these aspects.

1.8 In June 2003 TfL produced *Congestion Charging: Three Months On*, a summary of the information available from the first three months of the scheme. The conclusions then were that driver behaviour appeared to be settling down and that in several respects congestion charging was delivering greater impacts in terms of reduced traffic and congestion than had been projected.

1.9 This report seeks to provide a more informed update after six months or so of operation. Assessment of traffic and transport impacts is complicated by the evidence of a general background decline in personal travel into and around central London, quite independent of congestion charging.

1.10 Even accounting for those background trends however, the findings after six months of operation demonstrate that congestion charging has delivered against its traffic and transport objectives. In addition, the available evidence indicates that the scheme has not caused the adverse effects that some had feared.

1.11 In summary, the key findings of this report on the congestion charging scheme after six months or so of operation are as follows.

- Driver responses to charging appear to have settled: traffic data, payments data and survey information are all pointing to new settled patterns of travel.
- Traffic delays inside the charging zone have reduced by about 30%, which is towards the high end of TfL's expectations.
- Drivers in the charging zone are spending less time in traffic queues, with time spent either stationary or travelling at below 10 kilometres per hour reduced by about a quarter.
- Journey times to, from and across the charging zone have decreased by an average of 14%. Journey time reliability has improved by an average of 30%.
- Traffic management arrangements have successfully accommodated traffic diverting to the boundary route around the congestion charging zone.
- About 60,000 fewer car movements per day now come into the charging zone. TfL estimate that 20 to 30% of these have diverted around the zone; that 50 to 60% represent transfers to public transport; and that 15 to 25% represent switching to car share, motorcycle or pedal cycle, or other adaptations such as travelling outside charging hours or making fewer trips to the charging zone.

- Public transport is coping well with ex-car users: extra bus passengers travelling to the charging zone are being accommodated by increased bus network capacity.

- Excess waiting times (an indication of the time that bus passengers have to wait above that expected if the route was operating as scheduled) have reduced by over one-third on routes serving the charging zone – partly as a consequence of reduced congestion and increased bus services.

- Concerns over charging having a detrimental impact on economic activity appear to be misplaced. There have been fewer people coming to central London in recent months, but this is for a variety of reasons, mainly reflected in a fall in people coming in by Underground.

- Fears of increased parking around suburban rail stations have not materialised.

- Early data on accidents within the congestion charging zone suggest these are at least continuing to fall broadly in line with pre-charging trends, although a full evaluation of the road safety effects will take several years.

- Congestion charging is expected to generate £68 million this financial year for spending on transport improvements, and £80 million to £100 million in future years.

- Whilst most aspects of the scheme are operating satisfactorily for the majority of users, some aspects of operation and enforcement need further improvement; this is programmed to be implemented between October 2003 and March 2004. Measures have already been taken to increase numbers of enforcement processing and customer service representatives, and TfL is about to improve the enforcement processes and implement an enhanced Performance Indicator regime.

2 THE CHARGING SCHEME IN CONTEXT – BACKGROUND TRENDS

Wider changes are taking place to travel within London. Congestion charging needs to be understood in context.

2.1 Central London is unique. It is not possible to compare it with a 'control case' – somewhere similar where charging has not been applied; or even those few locations where some form of charging has been introduced. This means that judgements have to be made about the impacts of the scheme compared to conditions if charging had not been introduced. The implications of this issue for the monitoring programme were explored in the *First Annual Monitoring Report*, published in June 2003.

2.2 Traffic in central and Inner London has been declining, albeit modestly, for some years. Recent months have seen a decline in Underground travel due to reduced tourist numbers as a result of the international situation and the cyclical slowdown in the London economy. At weekends, when charging does not apply, travel in and around central London appears also to have declined.

2.3 Nevertheless, it is clear that congestion charging has had a substantial and unprecedented beneficial effect on traffic conditions in central London, quite distinct from these background trends.

2.4 Following the introduction of charging, the evidence is suggesting that traffic flows in Inner London outside the charging zone have stabilised at the reduced levels experienced during the latter part of 2002.

2.5 The Inner Ring Road is now operating smoothly and the delays caused as a result of works on this strategic route during 2002 are now a thing of the past. A certain amount of recovery in traffic numbers after the conclusion of these works might have been expected in 2003. But any recovery will be at least partially obscured by the introduction of charging.

2.6 To put traffic conditions in perspective, it should be remembered that, irrespective of congestion charging, the overwhelming majority of people travelling into central London do so by public transport. In recent years during the morning peak period, 7.00am to 10.00am, less than 15% of people entering central London have used a car. This means that even large percentage changes to car movements are comparatively small in terms of the overall picture of travel to central London.

2.7 Underground patronage and revenue data suggest that the numbers of passengers coming to central London may be down by 5% to 10% across the day compared to equivalent months during the Spring and Summer of 2002.

2.8 This post-dates the re-opening of the Central Line following the Chancery Lane derailment and is part of a recent pattern of decline over the entire Underground network across charging and non-charging hours and at weekends, probably reflecting current economic conditions.

2.9 A proportion of this fall in Underground passengers is reflected by increased travel by bus – probably accentuated by improved bus journey times and reliability. In addition, there is a complex pattern of other changes to travel behaviour, reflecting both background trends and changes directly induced by congestion charging.

2.10 TfL currently estimate that there are 60,000 to 80,000 fewer people travelling to the congestion charging zone by all travel modes compared to 2002. Most of the people no longer driving into the zone as a result of congestion charging have transferred to public transport or made other adaptations, rather than no longer coming to central London. Taking this into account, TfL consider that the scheme is responsible for only 5% to 7% of this overall reduction, i.e. about 4,000 fewer people; whilst the decline in Underground traffic is responsible for 50,000 or so fewer people travelling to central London. This is discussed further in Section 5.

2.11 There are a complex series of factors affecting traffic and transport activity in central London. The factors that are thought responsible for the overall decline in travel to central London are the general economic downturn – lower employment levels, a fall in retail activity and lower numbers of foreign tourists, including the effect of recent international events; and background transport trends such as the reduced frequency of commuting trips.

2.12 All of this complicates the interpretation of the emerging results from the monitoring programme, and points to the necessity to see the results presented in the following pages in a wider context.

2.13 The methodology and analyses used in the monitoring programme are described at length in the *First Annual Monitoring Report,* and are designed to provide robust indications of the changes resulting from the scheme. Findings from over 100 different survey programmes are now being assembled, but TfL's understanding of the full impacts of congestion charging is still developing. In particular, many of the key surveys of economic and social impacts are due to take place this Autumn, these being complemented by a further intensive round of traffic surveys.

2.14 From the information that is currently available, it is clear that congestion charging is achieving its key objective of reducing central London's traffic congestion, and producing broadly the scale of impacts and benefits that TfL had expected.

2.15 There is clear evidence of a significant reduction in traffic levels and congestion coinciding directly with the introduction of the scheme in February, in isolation from any short- or longer-term background trends. Moreover, the traffic and public transport problems that some had anticipated have not materialised.

3 CONTRIBUTION TO THE MAYOR'S TRANSPORT STRATEGY

Charging as part of the Transport Strategy

3.1 The central London congestion charging scheme is contributing to the central objective of the Mayor's Transport Strategy – increasing the reliability, efficiency, quality and integration of London's transport system, to provide the world class services the capital needs.

3.2 The ten key transport priorities that flow from this objective are:

- Reducing traffic congestion
- Overcoming the backlog of investment on the Underground
- Making radical improvements to bus services across London
- Better integration of National Rail with London's other transport systems
- Increasing the overall capacity of London's transport system
- Improving journey time reliability for car users
- Supporting local transport initiatives
- Making the distribution of goods and services in London more reliable, sustainable and efficient
- Improving the accessibility of London's transport system
- Bringing forward new integration initiatives.

3.3 A summary of progress on delivering against the ten Mayoral priorities is provided in TfL's *Annual Report 2002/03* published in June 2003 and available at www.tfl.gov.uk

3.4 The central London congestion charging scheme directly helps to address four of these key priorities – reducing traffic congestion, radically improving bus services, improving journey time reliability for car users and making the distribution of goods and services in London more reliable, sustainable and efficient.

3.5 Congestion costs both people and businesses time and money and is regularly identified by the public and commercial interests as one of London's most pressing problems. Before the introduction of the scheme, traffic congestion in central London had been getting worse, despite reducing traffic levels, probably reflecting increases in other uses of street space. Without vigorous action, conditions were set to deteriorate further.

3.6 Congestion charging is designed to make road users think carefully about using their vehicle in the charging zone during charging hours. By charging for journeys in the zone during charging hours, the scheme is reducing traffic delays to more manageable levels and making journeys easier for all road users including individual drivers as well as buses, taxis and business vehicles. Those who choose to pay the £5 charge benefit from quicker journeys and improved reliability.

3.7 The scheme also generates net revenues to support programmes and projects to enhance London's transport system. So those who pay the charge are also helping to fund improvements to London's transport.

How the impacts are measured

3.8 The traffic and transport impacts described in this report result from the surveys of the effects of the scheme carried out during Spring and early Summer 2003, coupled with data from automatic traffic counters to early October 2003. Further studies are in progress, in particular a comprehensive programme of traffic and business surveys this Autumn that will contribute towards a fuller assessment of the impacts of the scheme after one year in the *Second Annual Monitoring Report*.

3.9 The *First Annual Monitoring Report*, published in June 2003, provides more detailed information on the methodology used to measure the impacts of congestion charging. It provides an overview of the monitoring programme, summarises conditions prior to the commencement of charging, and sets out the range of indicators and issues being monitored. The *First Annual Monitoring Report* specified which 'before charging' figures would be used as a base against which to measure the effects of the scheme, to ensure consistent and objective reporting – these 'representative' values are identified throughout Section 3.

Settled traffic patterns

Behavioural responses to congestion charging largely settled within a few weeks of the start of the scheme.

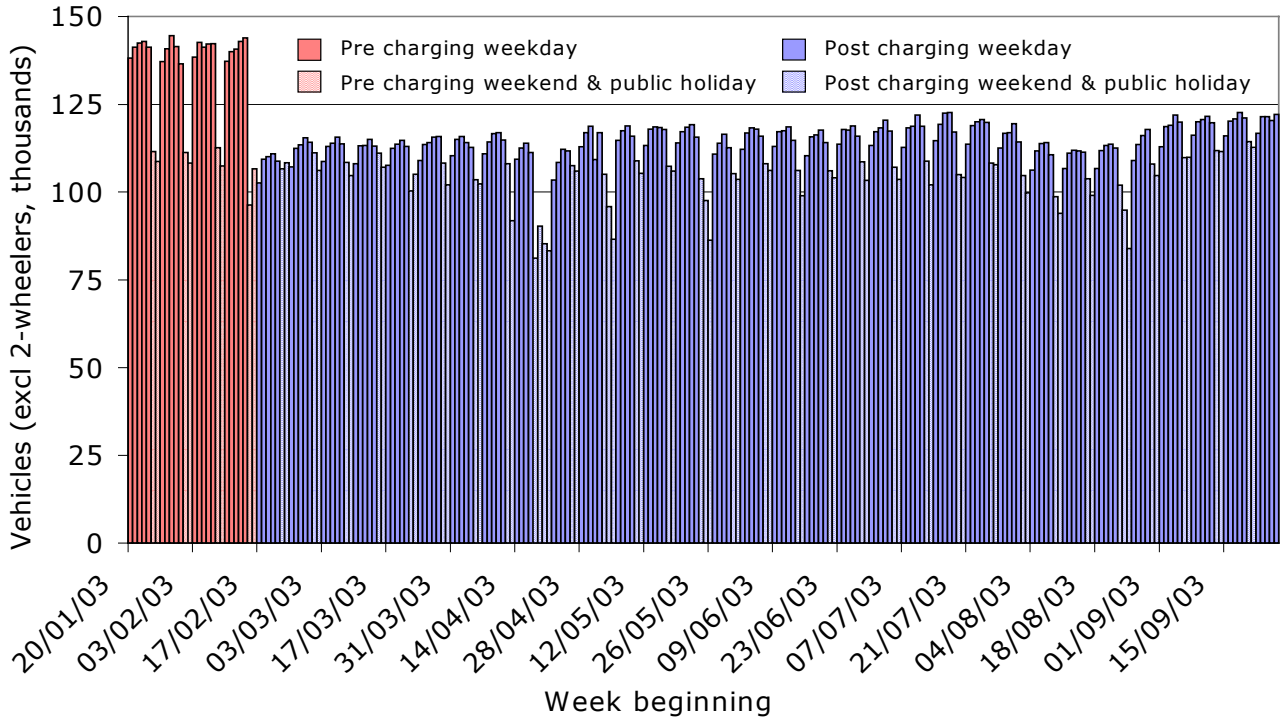
3.10 Data on traffic patterns, charge payments and modal transfers by car users all indicate that the new patterns of travel are well established, and that the traffic and transport effects of the scheme have stabilised.

3.11 It is now clear that the behavioural responses to congestion charging were established within the first few weeks and that the net impact has altered little since then. The public information campaign – helping people to understand how to pay the charge or how to select alternative transport arrangements to the charging zone – appears to have been an important factor.

3.12 As discussed in Section 6 below, payment levels have remained relatively constant since the second week of the scheme at an average of around 108,000 payments per day (including payments through fleet accounts). Information from surveys indicates that car users have switched to public transport with little 'experimentation', tending to keep to their initial choice.

3.13 Figure 2 shows the pattern of vehicles entering the charging zone on a number of major entry points. It can be clearly seen that aggregate traffic levels adjusted soon after the start of charging. The influence of holiday periods can also be seen. Whilst there is some suggestion of a slight upward trend in traffic since the first few weeks of the scheme, this may reflect seasonal patterns, though at least a full year's data will be needed to confirm this point. For practical purposes, TfL considers that the new patterns of travel are now effectively settled.

Figure 2
Traffic entering the charging zone during charging hours (and on weekends 7.00am to 6.30pm) on a representative selection of major entry points



Reduced congestion inside the charging zone

TfL expected a reduction of 20-30% in congestion inside the charging zone.
The scheme has delivered a reduction of around 30%.

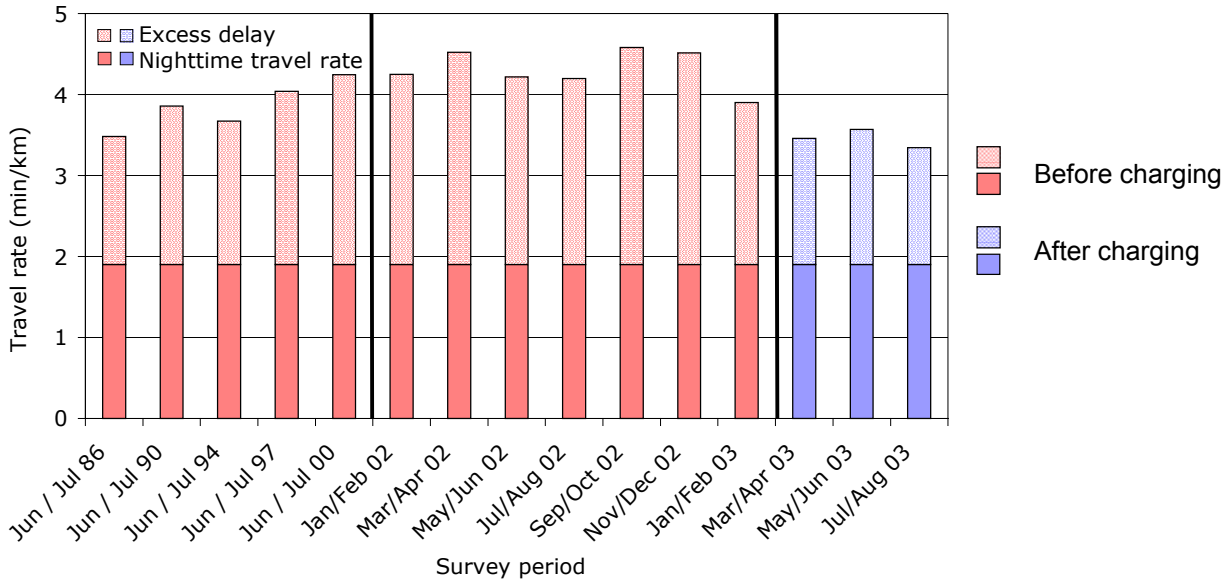
3.14 Traffic congestion is measured in terms of the minutes of delay per kilometre experienced, compared to the travel rate for a journey in uncongested conditions. TfL expected a 20-30% reduction in congestion inside the charging zone during charging hours, against typical traffic delays of 2.3 minutes/km, estimated to be representative of conditions before charging was introduced.

3.15 The actual reductions, comparing results from each of the bi-monthly congestion surveys against the representative figure of 2.3 minutes/km, were 32% (March/April 2003), 28% (May/June 2003) and 38% (July/August 2003).

3.16 The value for July/August is unrepresentative, being affected by the Summer holiday period. However, reductions in congestion are consistently at the upper end of the range of TfL's expectations, and typical traffic delays in the charging zone are now around 1.7 minutes/km.

3.17 This means that all-day average network speeds on roads inside the charging zone have increased from 14.3 kilometres per hour (representative of pre-charging conditions) to 16.7 kilometres per hour in May/June 2003. Congestion levels in the zone are now the lowest they have been since the current survey series began in the mid-1980s.

Figure 3
Congestion levels within the charging zone during charging hours



3.18 A technical point: these estimates of congestion are calculated using historic (pre-charging) data on patterns of traffic flows, to enable comparability of estimates before and after the introduction of charging. As is conventional practice, these data need to be periodically 're-weighted' to reflect more recent traffic flow data as it becomes available.

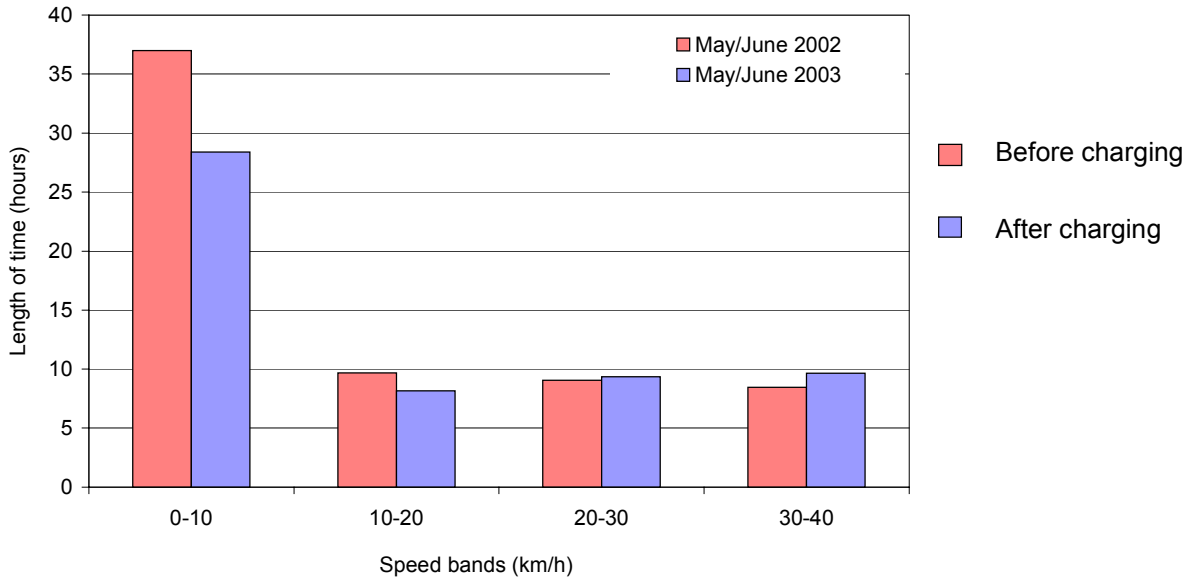
3.19 This would not be expected to significantly affect the estimates, and a full discussion of any resulting adjustments will be given in the *Second Annual Monitoring Report* to be published in Spring 2004.

3.20 Decreased congestion in central London is mainly reflected by a reduced amount of time spent stationary or moving in queues, rather than increases in driving speeds.

3.21 This effect is illustrated by Figure 4, which shows the total amount of time spent in four speed bands from the May/June 2002 survey compared with the equivalent survey in 2003. In the 2003 survey, the amount of time spent either stationary or travelling at below 10 kilometres per hour has reduced by about a quarter.

3.22 Whilst there are some increases in the amount of time spent travelling at the higher speeds, the gain is overwhelmingly in terms of reduced time spent in queues. This means better journey time reliability as periods of temporary 'gridlock' are very much reduced.

Figure 4
Time spent travelling at different speeds in the charging zone during charging hours



Improved and more reliable journey times

Journey times to, from and across the charging zone have decreased by an average of 14%. Journey time reliability has improved by an average of 30%.

3.23 The influence on journey times and reliability for trips to, from and across the charging zone can be judged from the survey of regular car commuters that took place between November 2002 and April 2003. These surveys examined a typical cross-section of regular car journeys to, from and across the charging zone, from a range of origins and destinations throughout London. They gathered repeated data for the same journeys over a period of several months, excluding the Christmas period.

3.24 Key findings from this survey are that:

- outward and return journey times decreased by an average of 14%, compared with regular journeys made before the introduction of charging
- on a typical round trip of 80 minutes, this could mean a saving, on average, of 10 minutes
- the standard deviations of average travel times (a measure of the spread and hence reliability of journey times) reduced by around 30%, meaning that road users can now plan their journeys with greater certainty of arriving at the intended time.

Congestion on the Inner Ring Road

A small reduction in congestion has been observed on the Inner Ring Road. TfL expected congestion on the Inner Ring Road to remain at the level experienced before charging.

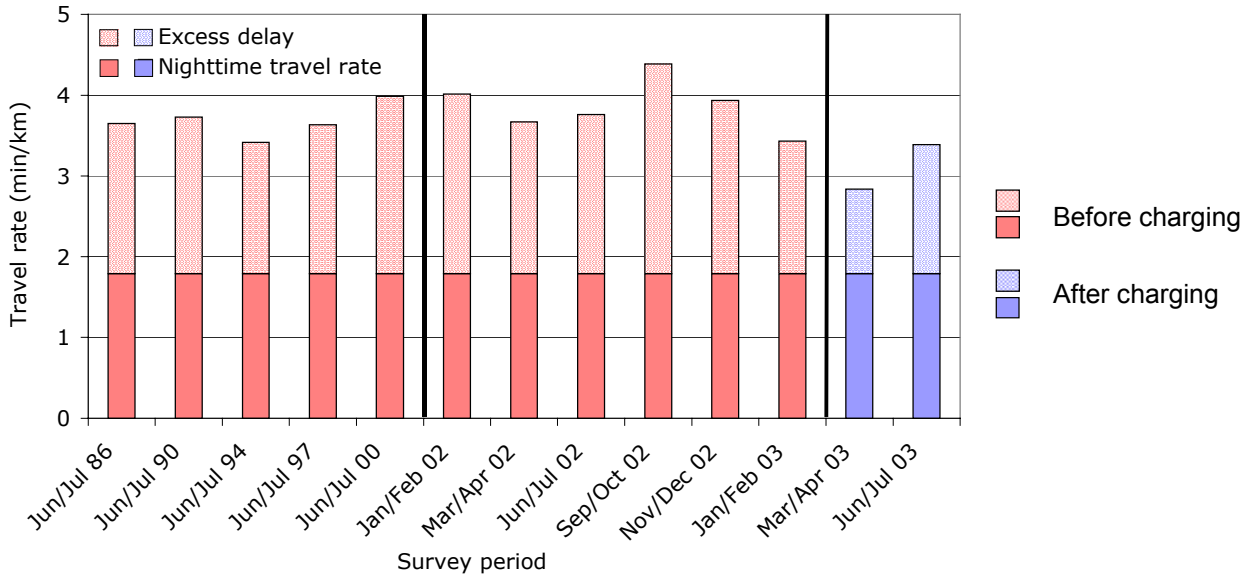
3.25 The Inner Ring Road forms the boundary of the congestion charging zone. No charge applies for vehicles using this route. Concerns were raised before the start of the scheme that traffic diverting onto the Inner Ring Road to avoid the congestion charge could lead to an increase in traffic volumes and congestion on the boundary route.

3.26 TfL expected that with the implementation of improved traffic management arrangements, there would be no overall change in congestion on this route.

3.27 Representative 'all-day' levels of congestion on the Inner Ring Road before congestion charging were estimated to be 1.9 mins/km. In the early weeks of the scheme, this reduced to 1.0 mins/km. The large reductions in congestion in the early weeks of charging also reflected increased emphasis by TfL on the operational management of this key route.

3.28 More recent results from June/July 2003 show congestion levels of 1.6 mins/km – a smaller but still useful improvement in conditions compared to those before the start of the scheme. Figure 5 provides more details.

Figure 5
Congestion on the Inner Ring Road during charging hours

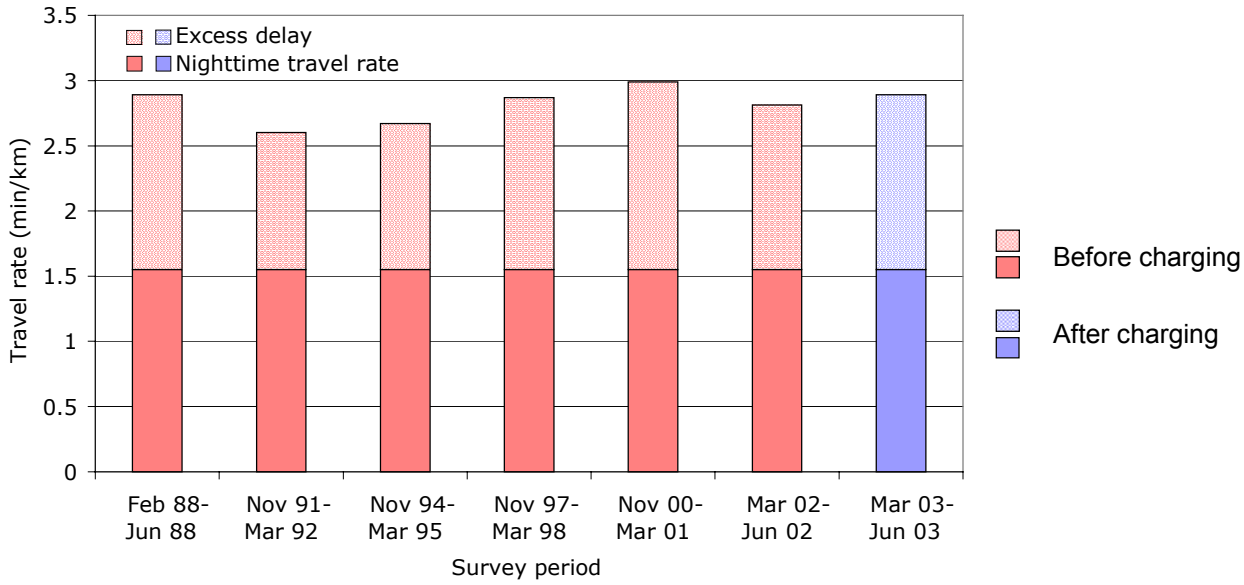


Congestion on main roads across Inner London

Results to date show no overall change in congestion levels on main roads in Inner London, in the period since congestion charging started. More work is needed to interpret this finding.

3.29 Inner London in this context means the area outside the Inner Ring Road and its immediate surrounds, but within the North and South Circular Roads. Results are now available from the survey of network speeds on the more major roads in Inner London, conducted between March and June 2003. These are compared in Figure 6 against equivalent surveys during 2002 and 2001.

Figure 6
Congestion on main roads in Inner London during charging hours



3.30 TfL estimated the representative all-day level of congestion before the scheme to be 1.3 mins/km on main roads in Inner London. TfL has found no statistically significant change in the survey of congestion levels on main roads in Inner London outside the congestion charging zone.

3.31 This particular survey does not cover the radial roads immediately outside the Inner Ring Road where there have been major reductions in congestion. It may also be that reduced traffic levels across Inner London resulting from congestion charging, in combination with environmental traffic management schemes on residential roads, have meant a transfer of traffic from minor roads to major roads that are more likely to be covered in the congestion survey – so the survey does not reflect the full picture of congestion changes in Inner London.

3.32 Other surveys have shown improved journey times for longer journeys to and from the charging zone, and an overall picture of reductions or no change in traffic on local roads. These surveys are discussed elsewhere in this Section.

3.33 Further surveys and analysis will be undertaken over the coming months to seek a fuller understanding of patterns of traffic and congestion changes across Inner London.

Traffic levels

3.34 *Congestion Charging: Three Months On* gave TfL's initial results for the changes to traffic flows in and around the charging zone. Fuller results are now available from a more comprehensive programme of traffic counts taken during May and June 2002. These, together with similar counts being undertaken this Autumn (not yet available) will provide the full year-on-year picture of the traffic changes associated with the scheme. Those results should be available for inclusion in the *Second Annual Monitoring Report*.

3.35 Estimates of traffic changes, based on data from the Spring 2003 surveys, are currently available for:

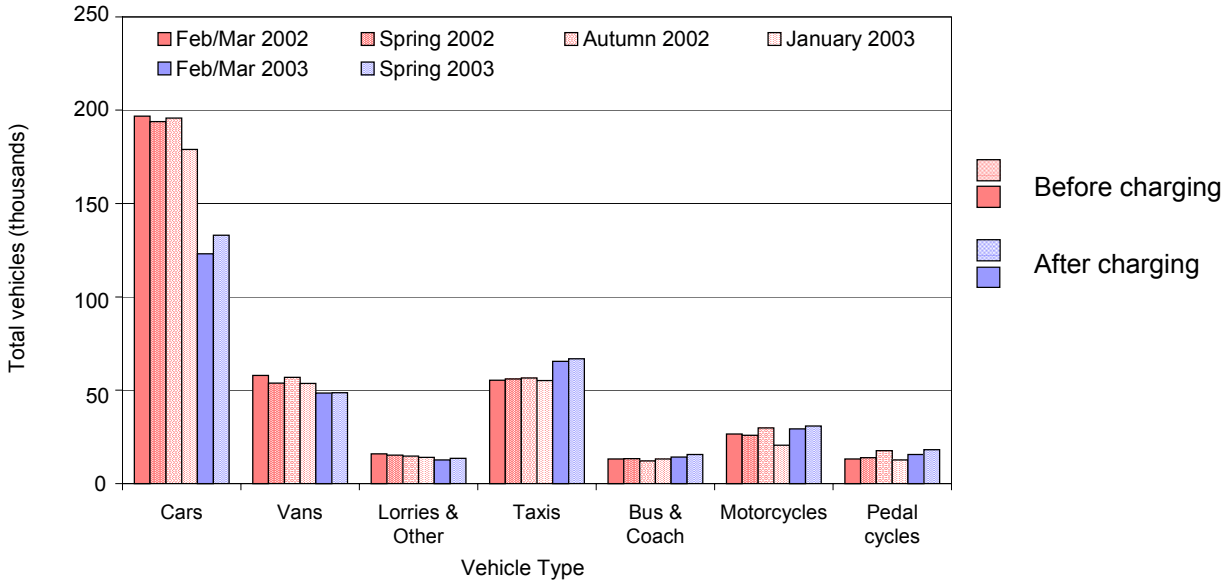
- traffic entering and leaving the charging zone
- traffic circulating within the charging zone
- traffic on the Inner Ring Road
- traffic making wider orbital movements
- traffic on local roads.

Traffic entering the charging zone

There has been a substantial reduction in cars, with some increases in taxis, buses, pedal cycles and motor cycles.

3.36 Figure 7 shows the results of the various surveys of traffic entering the charging zone in terms of the flows of each of the main types of vehicle. These surveys are conducted at locations just inside the boundary of the charging zone, primarily defined by the Inner Ring Road.

Figure 7
Total traffic entering the charging zone during charging hours



3.37 Various comparisons are possible using these data. The most representative comparison is Spring 2003 against Spring 2002. Using this comparison, the number of cars, vans, lorries, taxis, buses and coaches entering the charging zone during charging hours have reduced by 16%. The reduction in potentially chargeable vehicle movements – cars, vans and lorries – is 26%.

3.38 The changes to the volumes of different vehicle types entering the congestion charging zone are as follows:

- car movements have reduced by about 30%, slightly above the top end of TfL's expectations of 17-28%
- taxi movements have increased by about 20%, a much higher response than TfL had expected
- buses and coach movements have increased by around 15%, broadly in line with the additional bus service provision introduced by TfL
- van and lorry movements have reduced by about 10%; somewhat higher than TfL had expected
- pedal cycle movements have increased by around 30%, much higher than TfL had expected, although this increase is on a relatively small base and the first half of 2003 was notable for conducive weather conditions
- motorcycle movements have increased by about 20%, a higher increase than TfL had expected.

3.39 These patterns of inbound traffic to the charging zone are broadly replicated in the outbound direction. The relatively large increases in pedal and motor cycle movements are strongly focused on the morning (inbound) and evening (outbound) peak periods, suggesting an increase in commuting by these modes.

3.40 Roadworks in central London may have reduced traffic levels there during 2002, in addition to the longer-term background trend of a steady decline. Since these roadworks have been completed, a recovery in traffic levels may have occurred, although this cannot be directly quantified. Any recovery would have had the effect of making observed traffic reductions smaller than would otherwise have been the case.

3.41 Figure 7 also shows the sharp changes in traffic levels just before and after the start of congestion charging – evidence that is strongly corroborated by data from automatic traffic counters, seen in Figure 2 at the start of Section 3.

3.42 The 'step change' reduction in traffic levels immediately following the introduction of the scheme makes it clear that the reductions in traffic seen in 2003 are a direct result of the congestion charging scheme, and reflect to only a very minor extent the background trend of reducing traffic. More importantly, the traffic reduction resulting from congestion charging has come with a reduction in congestion, which had previously been increasing.

Traffic circulating within the charging zone

Available data indicate traffic circulating within the charging zone has reduced by 10 to 15%.

3.43 The primary indicator of changes in traffic circulating within the charging zone is vehicle-kilometres driven, excluding motorcycles and pedal cycles. A robust comparison would require a full dataset of traffic counts spanning both Spring and Autumn 2003, against the equivalent counts in 2002. These can then be weighted to account for the differing lengths of various classes of road within the charging zone.

3.44 At this stage, Autumn 2003 counts are not yet available. In the interim, indications of traffic change within the charging zone have been derived from comparing numbers of vehicles observed at representative count sites within the zone.

3.45 *Congestion Charging: Three Months On* quoted reductions of about 16% in circulating traffic (excluding motorcycles and pedal cycles), as measured during the first few weeks of charging. This was based on counts at 18 representative sites within the charging zone, compared with directly equivalent counts in 2002.

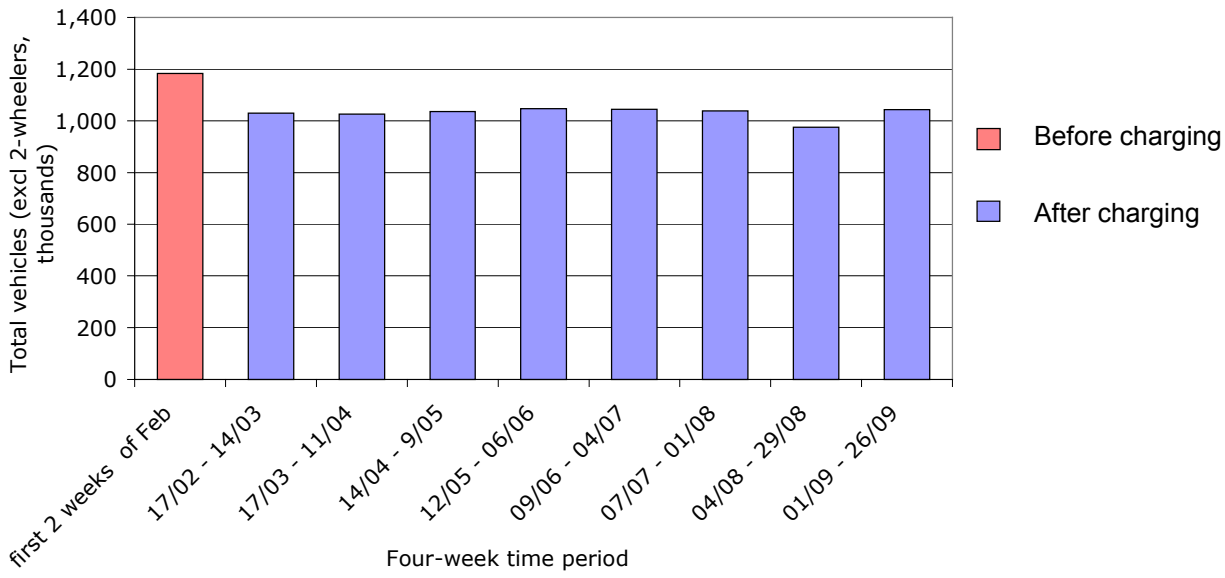
3.46 A second set of counts were made at 34 sites during May 2003, and compared to directly equivalent counts taken at the same time in 2002. These yielded an equivalent but not directly comparable estimated reduction of 12% in four-wheeled vehicles, some 2-3 months after the introduction of charging.

3.47 Also available are measurements from automatic traffic counters located in and around the charging zone, shown in Figure 8. This shows average daily flow (during charging hours) for a series of four-week periods following the introduction of charging, compared to flows recorded in the weeks immediately before charging was introduced. There are no comparable 2002 data for this series. The automatic traffic counters show immediate reductions in circulating traffic flows of 13%, which have been broadly sustained since.

3.48 All current volume-based estimates therefore indicate reductions in circulating traffic within the 10-15% range expected by TfL.

3.49 Estimates of the change in vehicle-kilometres driven (based on the data available at this stage and therefore subject to a wide range of statistical uncertainty) indicate a reduction in circulating vehicles with four or more wheels of between 5% and 15%. TfL considers that the true value is at the higher end of this range, given the large reductions in congestion that have been achieved by congestion charging. However, the availability of a more precise estimate will require the completion and analysis of the current Autumn programme of counts.

Figure 8
Traffic circulating within the charging zone measured at 16 automatic counter sites during weekday charging hours



Traffic levels on the Inner Ring Road

Traffic using the Inner Ring Road to avoid the charging zone has been successfully managed.

3.50 Traffic on the Inner Ring Road has been measured using both permanent automatic counters and periodic manual counts. It is now possible to assemble best estimates of traffic flow at 20 counting sites on the Inner Ring Road. These show an overall increase in traffic volumes of 5%, comparing pre-charging traffic levels against flows in May 2003, though this may be affected by seasonal variation. This is somewhat less than the increase forecast by TfL.

3.51 There have been larger, more localised increases and decreases, but as discussed above, it is clear that the Inner Ring Road is successfully accommodating these changed traffic patterns.

Traffic changes outside the charging zone

Varying, relatively small changes in orbital traffic levels have been measured. No significant traffic displacement to local roads around the zone has been observed.

3.52 Key surveys being undertaken this Autumn will focus on radial traffic approaching the charging zone. Other surveys for which initial results are now available include surveys of orbital traffic crossing four radial 'screenlines' extending outwards from the charging zone, and results from counts taken on a variety of local roads on behalf of boroughs surrounding the charging zone.

3.53 Small increases in orbital traffic were projected as a result of congestion charging. The available screenline data show small increases of around 3% in traffic across sample sites on the Eastern and Northern screenlines (9 and 8 major road sites respectively). A larger increase of 7% was observed across Western screenline sites (12 major road sites), and an overall decline of 7% in traffic at 7 major road sites across the Southern screenline sites (all excluding the boundary route). These limited results are generally reflective of the changes in orbital traffic expected by TfL following the introduction of charging. Full screenline surveys, covering all roads on each of the screenlines, are taking place this Autumn.

3.54 Traffic is being monitored by TfL at 46 sites on local roads surrounding the charging zone, at the request of some London Boroughs. Of these sites, two-thirds have seen either no change or an overall decrease in the total levels of traffic during charging hours compared to pre-charging conditions, and one-third of the sites saw an increase.

3.55 These sites do not provide an indicator of total traffic within a borough since they are not representative of all roads. However, the sites outside the congestion charging zone in Camden, Tower Hamlets, Wandsworth, Hackney and Lambeth have all seen overall decreases of between 1% and 11%, whereas small overall increases have been observed at the sites in Kensington and Chelsea (+1%), Westminster (+1%) and Southwark (+5%). The differences between these results and the screenline figures discussed above probably reflect the variability of traffic at individual sites.

3.56 On the basis of these results, TfL considers that there has been no material traffic displacement to local roads in areas surrounding the charging zone, but this needs to be reviewed in the light of full results from the Autumn traffic surveys.

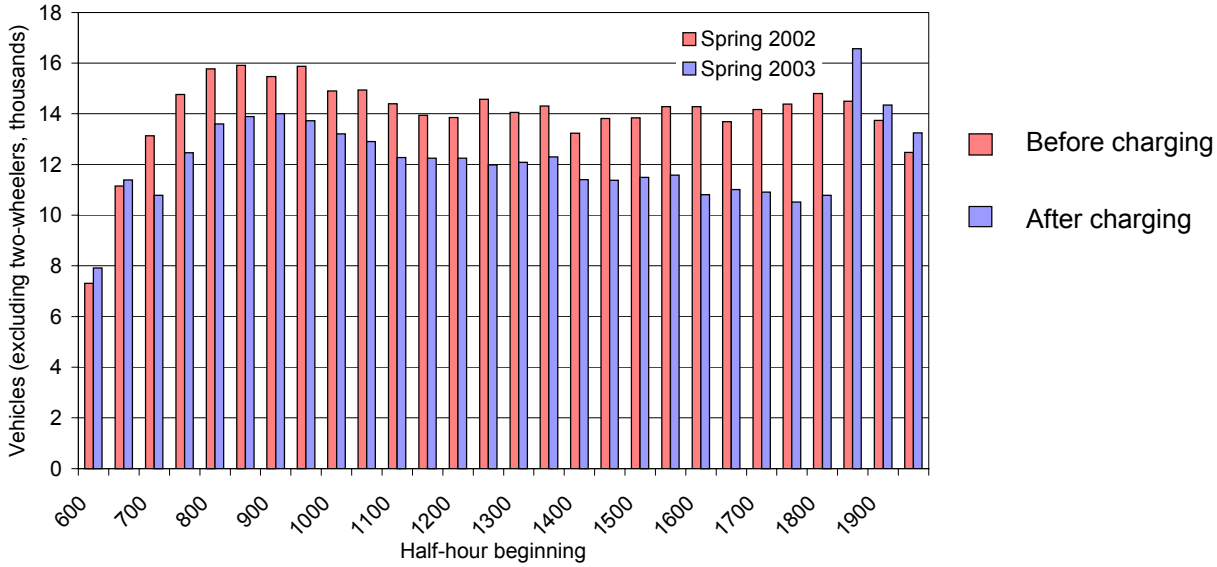
Traffic levels outside charging hours and at weekends

There has been no substantial shift in the timing of vehicle trips to avoid the charging hours.

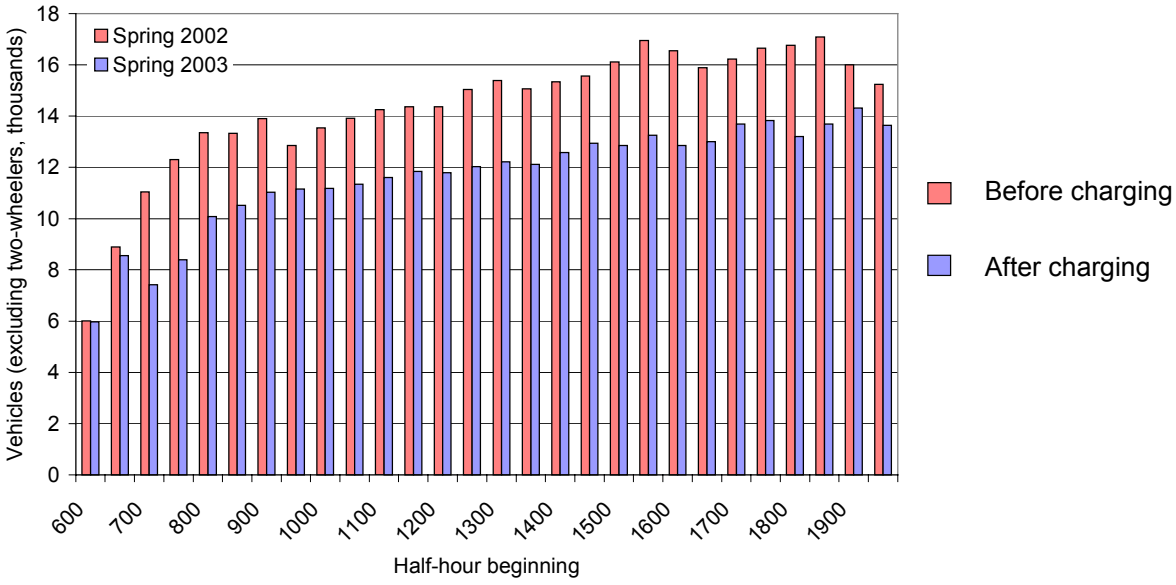
3.57 Reduced traffic coming into the zone during charging hours might be expected to lead to some changes in traffic volumes outside charging hours if drivers changed the timing of their trips. Within the charging zone and at the boundary, there are increases in inbound traffic during the evening 'shoulder' period immediately after the end of charging hours (6.30pm) but this is not causing traffic problems. The scale of the change is shown in Figure 9.

Figure 9
Half-hourly pattern of traffic (excluding motor cycles and pedal cycles) entering and leaving the charging zone

9(a) Traffic entering



9(b) Traffic leaving



3.58 The available data show no significant changes in total traffic volumes within the charging zone on Saturdays and Sundays (see also Figure 2 at the start of Section 3), or in the early morning period before charging hours start.

3.59 Comparing 'non-holiday' weekends at a representative selection of major entry points to the charging zone with the period before charging, observed changes, comparing four-week periods, range between –3% and +4% on Saturdays, and –7% to +3% on Sundays (7.00am-6.30pm). A similar comparison for sites on the Inner Ring Road yields changes of between –2% and +7% for Saturdays, and –1% to +8% on Sundays.

3.60 Given an element of seasonal variation which may be expected, and the fact that charging does not operate at the weekend, TfL concludes that there is no evidence of a material shift of traffic to non-charging hours as a result of congestion charging, beyond the increase in traffic entering the zone between 6.30pm and 7.00pm on weekdays as seen in Figure 9(a).

Travel behaviour

50 to 60% of those inbound car journeys not taking place as a result of the charge have transferred to public transport; the remainder have diverted around the charging zone or made other adaptations.

3.61 Various survey data indicate that there is a greater propensity to change car travel behaviour to the charging zone by those making shorter distance car trips; by those making less frequent trips; and by those making non-work related trips.

3.62 It is clear that the charge is also having an effect on commercial vehicle and taxi movements, though both of these are less well understood at this stage and may be affected by other economic factors.

3.63 Although the surveys that will probe the changes in individual travel behaviour have yet to be completed, it is possible to provide an update to the earlier preliminary analysis in *Congestion Charging: Three Months On.*

3.64 The key points are as follows.

- The reduction in car trips into or through the charging zone as a result of the scheme is around 60,000 per charging day: after allowing for multiple trips by individual cars, this means that about 50,000 cars per day are no longer being driven into or through the charging zone.

- 20-30% of this reduction of 60,000 inbound car trips is estimated to be car journeys which previously travelled through a part of the charging zone and which now divert around the zone or are made less frequently. Many of these journeys are being diverted to the Inner Ring Road or other 'orbital' routes around the zone. On the Inner Ring Road itself, there is also a reduction in that part of its traffic which previously used sections of this route for journeys to or from the zone.

- 50-60% of the overall reduction is represented by car users that have transferred to public transport: bus, Underground or rail. This represents about a 2% increase in overall public transport passenger levels coming into the zone comparing patronage immediately before and after the start of charging.

- 15-25% of the reduction in car movements is the result of the occupants switching to other forms of transport, such as car share, motorcycle and pedal cycle; or undertaking other adaptations, such as making fewer car journeys to the charging zone, walking, or travelling outside charging hours. Up to 10% represents the effect of car journeys to the zone being diverted to other destinations, made less frequently or not at all.

- The occupancy of cars coming into the zone has increased by around 10%.

- The number of passengers per taxi has reduced but there has been an increase in the number of vehicles; the net result is broadly no change in the number of people entering central London by taxi.

- TfL projected up to 15,000 additional bus passengers on routes serving the charging zone in the morning peak period 7.00am to 10.00am; the actual increases have been in line with this projection.

- The reduction in commercial vehicles coming into the charging zone has occurred alongside an apparent increase in commercial vehicle activity within the zone – suggesting better utilisation of commercial vehicles.

3.65 As more survey information becomes available it will be possible to develop a fuller understanding of the behavioural changes that underlie the observed changes in travel.

3.66 The detailed social impacts surveys following the start of the scheme are currently underway and it will be some months before detailed results emerge. However, results are beginning to appear from a telephone 'recall' survey of some 4,000 London residents who travelled to central London before congestion charging commenced and who have been asked about how their personal travel arrangements have altered since the start of the scheme.

3.67 This survey depends on respondents' recollection of their travel patterns. The preliminary findings suggest that changed travel arrangements have been concentrated, as expected, in households with a car available. Table 1 gives more details:

Table 1
Changes to travel arrangements by individuals from different household types
Preliminary results

	% response			
	Changed MOST of journeys to central London	**Changed SOME of journeys to central London**	**No change**	**Other including 'don't know'**
Whole sample	**11**	**13**	**76**	**1**
Car availability: individuals from				
non-car households	4	5	90	1
one-car households	13	16	70	0
two-car households	16	20	63	1
three-car households	23	18	59	0

3.68 This survey suggests that around one quarter of people who travel to or around the congestion charging zone have made some sort of change to their travel arrangements as a direct result of congestion charging. The survey also suggests that around 10-15% of all personal trips to the charging zone have been adjusted in some way – adjustments that could include changing mode, time, route or frequency of travel.

Public transport impacts

3.69 Prior to the introduction of congestion charging the overwhelming majority of those travelling to central London in the morning peak were already using rail, tube or bus. The forecast change in public transport passengers was small relative to this base – up to 2%. However, local impacts were expected to be more significant, particularly for buses which would be providing for the majority of the net increase in travel by public transport.

Bus patronage

Additional bus passengers have been successfully accommodated through extra bus capacity.

3.70 In the morning peak period, 7:00am to 10:00am, up to 15,000 additional bus passengers were expected on routes serving the congestion charging zone. Around half of these were expected in the critical peak hour. Surveys undertaken shortly after charging started showed passenger increases in line with this forecast.

3.71 Across London, bus patronage was up by over 7% in the year to March 2003. Updated surveys of numbers travelling to the charging zone are taking place this Autumn.

3.72 To take account of the strong underlying growth in London bus patronage – as well as increases expected due to congestion charging – bus capacity to the charging zone in the peak hour was increased by over 11,000 spaces. This was implemented through a combination of higher frequencies, new and altered routes and the use of larger buses. Service planning took account of network development aspirations in the round, including the need for more capacity, with some new direct links made possible by bus.

3.73 There was no evidence of congestion charging having caused any overall increases in levels of crowding on buses. However, as patronage is continuing to grow across the network, for a variety of reasons, schemes are being brought forward to further increase capacity.

Bus journey times and reliability

'Excess Waiting Times' (the effect of unreliability on average wait times at bus stops) have reduced by over one-third for bus routes serving the charging zone as a result of congestion charging and additional bus capacity.

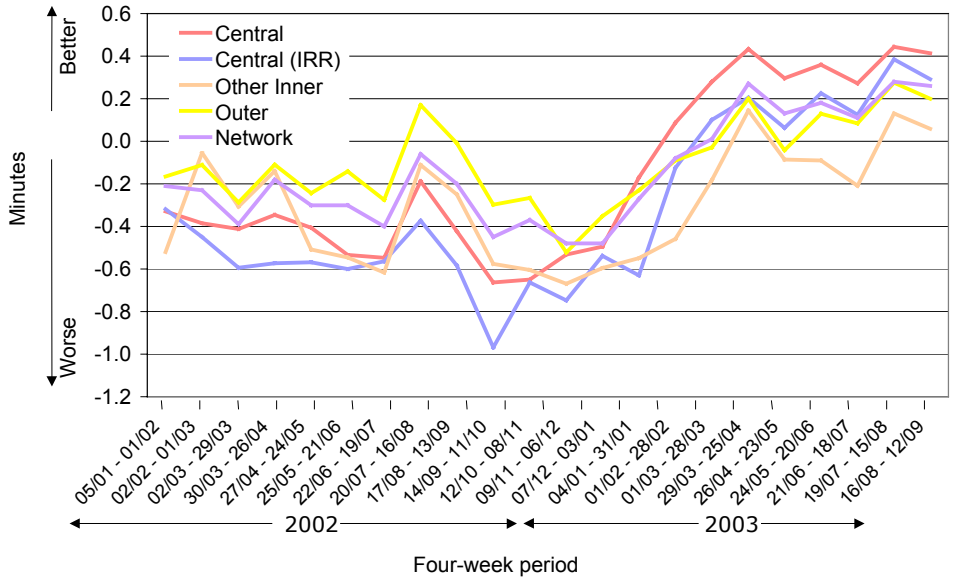
3.74 Reliability has improved significantly across the bus network during 2003 due to a combination of factors including contractual quality incentives, better route supervision, updated schedules, driver training and the introduction of bus priority schemes. Improvements for Inner London routes have been further boosted by the effects of congestion charging in reducing delays caused by traffic congestion.

3.75 Excess Waiting Time is a key measure of reliability as experienced by passengers, representing the additional wait at stops caused by irregularity or missing buses.

Across Greater London, this fell by 25% in the twenty-eight weeks ending 12 September 2003 compared to the same period in 2002. For routes serving the charging zone and the Inner Ring Road there were reductions of over one-third.

3.76 London Buses sets the bus operators performance standards for Excess Waiting Time, based on the characteristics of the route. Figure 10 shows improvements in actual Excess Waiting Time relative to the minimum standards.

Figure 10
Bus Excess Waiting Time Monday to Friday, 7.30am – 6.30pm – difference between Excess Waiting Time standards and actual Excess Waiting Time



3.77 A major contributor to this improvement in reliability is the decline in disruption to services caused by traffic congestion. Network scheduled kilometres not operated due to traffic delays on weekdays averaged more than one-third below those in the same period of 2002. For routes serving the congestion charging zone the level of scheduled kilometres not operated due to traffic delays fell by 60%, and by over half for routes serving the Inner Ring Road.

3.78 Average bus speeds on a sample of sections of routes, geographically banded, are being monitored. The sampled route sections inside the charging zone have seen average speeds increase by around 7% in the morning peak compared to the same period last year. On other route sections speed changes have varied within the range of –3% to +3%, with small increases on the Inner Ring Road and on radial route sections in Inner London, and small decreases on sampled inner orbital sections.

3.79 Congestion charging has had a clear effect in considerably amplifying the benefits being delivered network-wide through other initiatives such as contractual quality incentives, updated schedules, better training and more route supervision. The direct effect on bus patronage has been relatively small, in line with forecasts, and has been successfully accommodated.

Underground patronage

A significant decline in Underground usage across London and particularly in Fare Zone 1 has been observed independent of the introduction of the congestion charging scheme.

3.80 Understanding the effects of congestion charging on the Underground has been complicated by the temporary closure of the Central Line, due to the Chancery Lane derailment, during the first part of the year. Early indications reported in *Congestion Charging: Three Months On* were of a small increase in patronage on the Underground in Fare Zone 1, the central area, that was in line with TfL's expectations. However, these results could only be tentative given the temporary closure of the Central Line at that time.

3.81 A longer time-series of Underground patronage data, including the months following the re-opening of the Central Line, reveals a broader picture of falling patronage. The decline appears completely unrelated to congestion charging. Two data sources have been used. The first is the combination of passengers entering and leaving Underground stations, recorded by the automatic ticket barriers. The second is revenue-based journey data, based on ticket sales.

3.82 Figure 11 shows the trend in passengers exiting Underground stations in and around the charging zone during the weekday morning peak period. Apart from the holiday period, it shows declines in patronage in central London during the Spring and Summer months of 2003, contrary to the expected small overall increase projected to result from congestion charging. Comparing June and July 2003 with the equivalent months during 2002, in the three-hour morning peak period there was a decrease of 55,000 passengers, or 11%, exiting stations inside the charging zone and on the boundary.

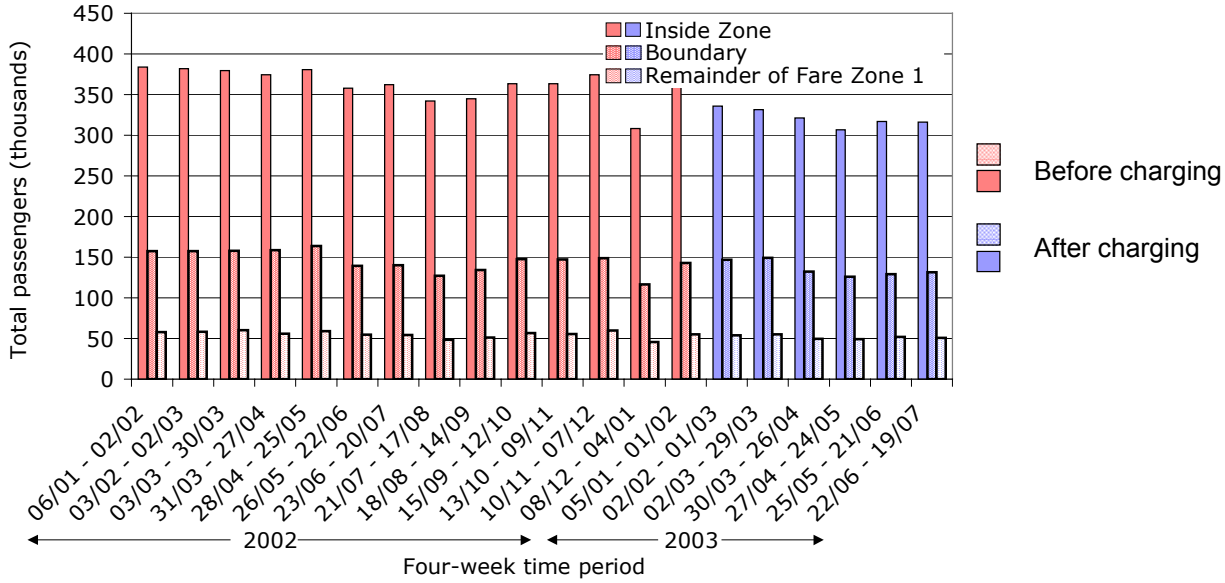
3.83 Revenue-based data show similar but less-pronounced trends, with year-on-year reductions in patronage of up to 5% in Fare Zone 1, the central area, and between 2% and 3% across the Underground network as a whole.

3.84 Further research is underway to reconcile these indicators, and to understand the causes and implications of these changes in Underground patronage.

3.85 Nevertheless, they demonstrate that fears that congestion charging would lead to additional overcrowding on the Underground were unfounded, and tend to support TfL’s predictions of a very small overall impact on the Underground resulting from congestion charging.

3.86 They are also clearly significant in any consideration of the impacts of the scheme on the central London economy. It is clear that, irrespective of any marginal increases associated with congestion charging, overall passenger levels on the Underground are now significantly lower than during 2002.

Figure 11
Passengers exiting Underground stations in and around the charging zone during the morning peak period 7.00am – 10.00am



National Rail patronage

No significant changes in National Rail patronage have resulted from congestion charging.

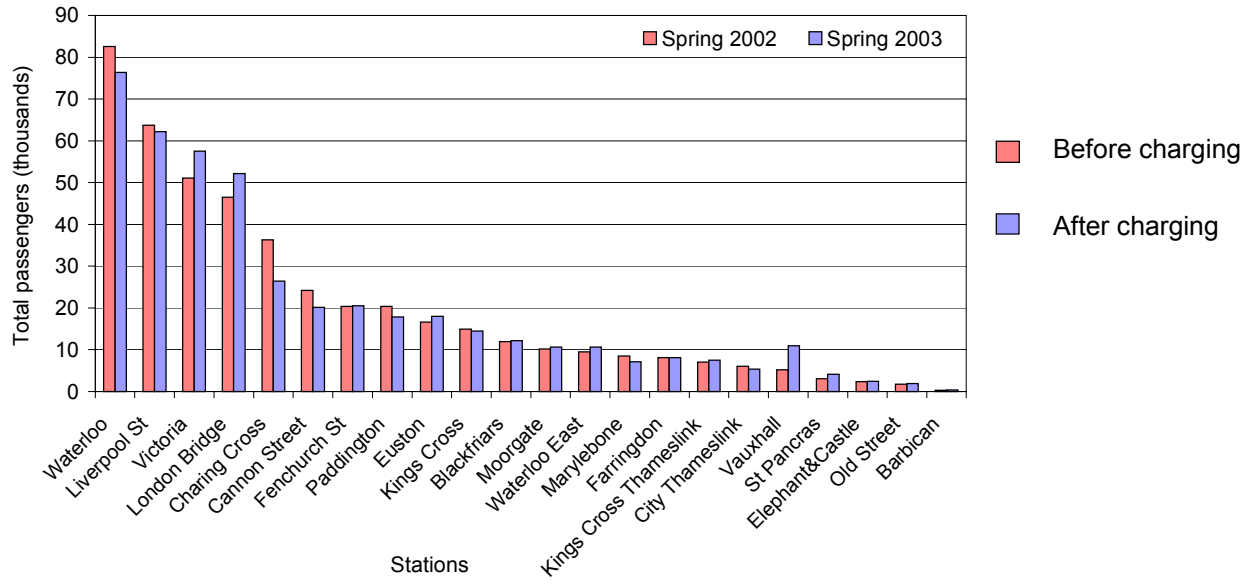
3.87 Comprehensive surveys of passengers using National Rail stations in and around the charging zone were undertaken in June 2003, allowing direct comparison with a similar set of counts undertaken in June 2002.

3.88 The results show overall 2003 passenger numbers at stations in and around the charging zone to be very similar to 2002, with a net 1% decrease in inbound passengers during the morning peak, and a net 1% increase in outbound passengers over the entire day.

3.89 Given the normal day-to-day variation that would be expected, there has effectively been no measurable net change in National Rail passengers following the introduction of charging.

3.90 This is in broad agreement with TfL's expectation of the effects of the scheme. This net stability does conceal some changes at the level of individual stations (Figure 12), though there is no particular reason to associate these with congestion charging. Some of the changes are explained by the partial closure of Vauxhall station during the 2002 survey period, also affecting comparative passenger levels at Waterloo.

Figure 12
National Rail stations - morning peak passenger arrivals



Railheading at stations in inner and outer London

There has been no increase in drivers avoiding the charge by parking at stations.

3.91 A possible secondary effect of charging was the prospect of a significant increase in drivers avoiding the charge by diverting to rail stations outside of the charging zone, and continuing their journeys by rail ('railheading'). It was feared by some that this might result in adverse changes to parking demand, at the stations themselves (the 'railheads') and in the surrounding roads, where these were not covered by a controlled parking zone.

3.92 To test for this, surveys at a selection of stations where increased 'railhead' parking might be feasible were undertaken in the early weeks following the introduction of charging. The results indicate that there has been little change in railheading following the introduction of congestion charging.

3.93 Of the nine stations surveyed, an overall net decrease of 1% in railheading was observed. Some passengers who were surveyed at these stations, and who previously drove to the charging zone, stated that they had begun railheading. However, they represent only 0.5% of rail passengers. It should also be recognised that there is always 'churn' in the travel market to central London, with people varying their means of travel – e.g. to start or stop 'park-and-ride' travel – regardless of congestion charging.

Road traffic accidents

A reduction in road accidents within the charging zone has been recorded although this seems to reflect a longer-term trend of declining accidents. It is too early to draw firm conclusions from the limited accident data that is so far available.

3.94 The number of personal injury accidents reported to the Police each month has been decreasing year on year between 2001 and 2003, both within the charging zone and more widely throughout London. Data (still provisional) for the first four months after the introduction of charging show no evidence of detrimental impacts, either in terms of the number of accidents or the pattern of vehicle involvement. The general trend of a reduction in reported accidents continues.

3.95 Over the four months since the introduction of charging for which data is available, there has been around a 20% decrease in the number of reported personal injury accidents within the zone during charging hours compared to the same period in 2002.

3.96 This compares with a 16% decrease during the same periods from 2001 to 2002. On the Inner Ring Road and in the rest of London there has also been a general reduction in the number of accidents but of a lesser magnitude, 11% and 8% respectively. And, unlike reported accidents within the charging zone, the level of reduction was less between 2002 and 2003 than it was between 2001 and 2002.

3.97 The number of powered 2-wheelers (motorcycles and mopeds) involved in accidents has also reduced following the introduction of charging when compared to the same periods in 2002, by about 15%. There has also been a reduction of 17% in the number of pedal cycles involved in accidents. These reductions are despite the increases recorded in the number of two-wheeled vehicles within the charging zone.

3.98 On the Inner Ring Road and in the rest of London there has also been a decrease, although to a lesser extent, in the involvement of most vehicle types in accidents. The exceptions are pedal cycles, buses and coaches, for which the available data shows an increased involvement between 2002 and 2003.

3.99 It is too early to determine the causes of these apparent reductions in accidents, or to be certain that these trends are sustained over a longer period. Nevertheless, concerns about potential increases in two-wheeled vehicle accidents do not appear to have been borne out. These early provisional data are encouraging.

4 REVENUES FROM THE SCHEME

Congestion charging is expected to generate £68 million this financial year for spending on transport improvements in London, and £80 million to £100 million in future years.

4.1 The central London congestion charging scheme was expected to generate a net revenue of £120 million in 2003/04 and £130 million in subsequent years.

4.2 The latest estimates are that net revenue will be some £68 million in 2003/04 and £80 million to £100 million in subsequent years.

4.3 The principal reasons for the reduced levels of net revenues, compared to earlier estimates are:

- budgetary estimates were based on the mid point of TfL's range of projected reductions in individual chargeable vehicles in the zone after charging. The actual number of individual chargeable vehicles coming into the zone is below the projected range, due to a combination of the fall in traffic being greater than expected, and some overestimation of the 'base' number of vehicles against which this fall took place
- higher than expected numbers of exempt and discounted vehicles
- fewer commercial vehicles than expected using the automated fleet scheme at a charge of £5.50 (the 50p uplift applies to offset the charges for vehicles that may not be captured by the enforcement camera network)
- higher than expected levels of evasion, now being addressed by a tightened enforcement regime and improved operational processes.

4.4 Not all vehicles travelling in the congestion charging zone are subject to the charge. Some are exempt, such as buses, coaches, emergency service vehicles and London licensed taxis/minicabs, and some are registered for a 100% discount from the charge, such as vehicles used by Blue Badge holders, vehicles with 9 or more seats, and certain operational vehicles used by local authorities within the charging zone.

4.5 In September 2002 TfL forecast a reduction of 12% to 28% in the number of individual potentially chargeable vehicles coming into the zone – i.e. individual cars, vans and lorries, after allowing for multiple trips. The mid-point of these projections was used to calculate expected revenues from the scheme.

4.6 The actual reduction in the number of individual potentially chargeable vehicles coming into the congestion charging zone is around 30%, above TfL's final range of projections.

4.7 In addition, the actual number of exempt and discounted vehicles within the charging zone has exceeded the estimates used when calculating the expected revenues from the scheme.

4.8 Finally, the initial levels of charge evasion have been higher than was allowed for, though this loss is being addressed under a package of improvements and new performance measures recently negotiated with the service provider. TfL now expect an increase in penalty charge revenues and, subsequently, in congestion charge revenues.

4.9 The current forecast for congestion charging revenues for 2003/04 is shown in Table 2 below:

Table 2
Forecast scheme revenues and costs for financial year 2003/04 (£ million)

Revenues	
Residents (at 50p per day)	2
Vehicles (at £5 per day)	102
Fleet vehicles (at £5.50 per day)	11
Total Congestion Charge Payments	115
Penalty Charge Payments	50
Total Gross Revenues	165
Costs	
Operating costs 2003/04 (reduces in subsequent years)	97
Net revenues	68

4.10 Forecast net revenue for 2004/05 onwards is £80 million to 100 million per year.

5 IMPACTS ON LONDON'S ECONOMY

The reduced congestion and other transport benefits from congestion charging are provisionally estimated to be worth around £180 million per year, against overall costs of £130 million per year, and before allowing for any benefits from the use of net revenues from the scheme.

5.1 At a general level, congestion charging was expected to mitigate the costs associated with traffic congestion; though any changes brought about by the scheme would take place against the backdrop of more general economic change, the components of which would be difficult to quantify in the short term.

5.2 This is especially so given the many factors in addition to congestion charging that have affected the central London economy before and during 2003. Beyond the direct and positive transport impacts, the effects of congestion charging were expected to be relatively small in scale. Businesses involved in TfL's monitoring programme, on the whole, report that they recognise the achievements of the scheme in reducing traffic congestion and improving the overall amenity of central London.

5.3 Nevertheless, concern has been expressed by a number of organisations about the possible impact of the central London congestion charging scheme on the retail sector. There has been a downward trend in retail activity and sales in central London during 2003, but this has been caused by a number of factors, notably a reduction in trips to central London on all modes of transport and most importantly by Underground, which accounts for 70% or more of the overall decline.

5.4 In July 2003, GLA Economics published a report which concluded that the general economic slowdown, the fall-off in overseas tourists and the temporary closure of the Central Line have been much more significant influences on retail activity in central London than the congestion charge.

5.5 Because the majority of people, 85 to 90%, coming to central London travel by public transport, the relative impact of reduced car users on central London's retail economy is minimal. TfL's updated assessment of the available data suggests that only 4,000 people are no longer travelling to the charging zone as a result of congestion charging.

5.6 Furthermore, any evaluation of the impacts of congestion charging on business should take into account both costs and benefits. The benefits to London of reduced congestion have not been fully evaluated but improved traffic conditions in and around central London should help offset the 'indirect costs' that traffic congestion imposes on business.

5.7 There has been an overall reduction in the total number of people coming to central London between 2002 and 2003. Counts of people on all transport modes suggest the reduction could be of the order of 5% or so – mostly due to fewer passengers on the Underground.

Cost-benefit assessment of transport impacts

5.8 The reduced traffic delays, improved journey time reliability, reduced waiting time at bus stops, lower fuel consumption and reduced accidents resulting from congestion charging all have an economic value. These benefits, of course, have to be set against the costs of operating the charging scheme.

5.9 Table 3 provides preliminary estimates of the annual costs and benefits of the scheme under settled operational conditions. This is based on a combination of observed impacts and computer simulations of the effects of charging across Greater London. TfL will prepare a full analysis once all the relevant studies are completed.

5.10 The fuller assessment will look at the less tangible impacts of charging, such as improved amenity – making London a more pleasant place to locate and do business. It will also consider in more detail issues such as compliance costs (the effort or administrative 'overhead' involved in paying the charge), and the effect on the wider London economy. In addition, it will look at the costs and benefits to different groups of road users.

5.11 Meanwhile the preliminary analysis summarised in Table 3 suggests the scheme is generating net benefits of around £50 million per year, resulting from economic benefits worth around £180 million per year against total costs of £130 million per year. These are central values from the estimated range. The benefits are estimated by assigning economic values to time savings, reliability improvements, accident reductions and other effects of the scheme.

5.12 This analysis excludes the revenues from the scheme which help fund other improvements to London's transport systems, and additional bus fares, as in cost-benefit terms these are a 'transfer payment'.

Table 3
Preliminary estimates of costs and benefits
of the Central London Congestion Charging Scheme (£ million per year, rounded)

Annual Costs	
TfL administrative and other costs	5
Scheme operation	90
Additional bus costs	20
Chargepayer compliance costs	15
Total	**130**

Annual Benefits	
Time savings to car and taxi occupants, business use	75
Time savings to car and taxi occupants, private use	40
Time savings to commercial vehicle occupants	20
Time savings to bus passengers	20
Reliability benefits to car, taxi and commercial vehicle occupants	10
Reliability benefits to bus passengers	10
Vehicle fuel and operating savings	10
Accident savings	15
Disbenefit to car occupants transferring to public transport, etc.	-20
Total	**180**

Understanding wider economic impacts

5.13 Several surveys covering business attitudes to congestion charging have been published – for example by London First, the London Chamber of Commerce and Industry and the Chartered Institute of Management Accountants – with varied conclusions. Some have reported a positive assessment of congestion charging, or indicated that congestion charging is relatively low on the list of issues of concern to business; others have reported negative conclusions.

5.14 These surveys have provided valuable feedback for TfL. They have raised issues for more in-depth treatment in the monitoring surveys taking place this Autumn.

5.15 For this report, TfL has considered the available survey evidence on the contribution of congestion charging to the decline in people coming into the charging zone.

Retail activity in central London – assessing the impact of congestion charging

5.16 There is some evidence that retail activity in central London during the first half of 2003 was significantly lower than the equivalent period in 2002. The 'Footfall Index', a recently introduced measure of people visiting retail centres, indicated a 7% year-on-year decline within central London, compared to a more stable picture for the rest of London and the UK. This pattern is broadly in line with the falls observed in Underground passengers travelling to central London.

5.17 A recent TfL survey of small businesses inside the charging zone indicated that the majority of respondents had experienced a decline in sales over the past year. One major retailer has claimed a relative under-performance of 7% in sales, comparing a major central London store with other London stores located outside of the charging zone. Other major retailers have experienced little change.

5.18 The issue here is: how much of any decline is correctly attributable to congestion charging?

5.19 The scale of the possible effect of congestion charging can be estimated from the data on the traffic and transport effects of the scheme presented earlier. Congestion charging – as intended – has undoubtedly reduced personal travel by car to the charging zone.

5.20 After allowing for through movements, repeat trips and increased car occupancy TfL estimates that no more than 4,000 fewer people per charging day are making journeys to the charging zone as a result of congestion charging. This reduction of 4,000 people constitutes just 5-7% of the 70,000 or so fewer people travelling to central London compared to 2002. The dominant factor has been the fall in Underground travel, which accounts for about three-quarters of the reduction.

5.21 The fall in travel to central London is obviously a key driver in any decline in retail sales, and it is clear that congestion charging has only contributed marginally to this.

5.22 The social surveys now underway will examine changes in actual trips to the charging zone by all modes from around 2,000 households in Inner London and 2,000 individuals in Outer London, where diaries of trips were taken last year.

Other factors affecting central London's economic activity

5.23 Given congestion charging has had little effect on the apparent scale of the downward trend in people coming to central London, as explained above, it is worth considering other relevant factors. There have been a number of influences that have applied over the last year or so, several of which are probably related. These have included:

- the temporary closure of the Central Line from January to May 2003
- international instability and fears of terrorism related to the Iraq war
- reduced overseas and domestic visitors to London
- the cyclical economic slowdown
- exceptionally good weather during much of 2003 reducing the attractiveness of discretionary shopping trips.

5.24 The analysis undertaken by the GLA Economics Unit has begun to put some of the relative importance of these factors into perspective. Work will continue to fully explore their impacts.

5.25 TfL will continue to develop its assessment of the economic impacts of the scheme through the ongoing monitoring programme. The main monitoring work with businesses is programmed for this Autumn, corresponding to surveys undertaken at the same time during 2002, to allow a comparative analysis. The *Second Annual Monitoring Report* will include an update on the initial assessment provided in this report.

6 SCHEME OPERATION

Call volumes, registration and payments have been stable since the early weeks of congestion charging. Improvements are underway to enhance the service provided to users of the scheme.

6.1 The operational systems and infrastructure, and most aspects of the operation of the congestion charging scheme have been functioning satisfactorily for most chargepayers since charging commenced, with the equivalent of about half a million congestion charging payments being processed each week. However, TfL's monitoring and chargepayer feedback on the first months of operation highlighted concerns around some aspects of the service.

Operational improvements

6.2 In August 2003 changes were therefore made to TfL's contract with Capita – the organisation responsible for much of the day-to-day operation of the scheme. Capita agreed to invest substantially to provide an enhanced level of service to central London congestion charge users. To do this they will employ more staff, and introduce enhanced IT and processes to improve data quality, customer care, and the enforcement process.

6.3 This re-negotiation is not unexpected given the innovative and unique nature of the scheme. Indeed, the original contract envisaged substantial changes would be made through a change control process and a six monthly review of the performance regime.

6.4 Improvements are planned to become apparent over the coming months, with the full programme to be complete by the end of March 2004. An increase in numbers of enforcement processing and customer service staff has already been implemented. TfL is about to introduce better enforcement processes allowing more Penalty Charge Notices to be issued and more efficient processing of representations and appeals; and developments in the Performance Indicator regime which links contractual payments and penalties to performance.

6.5 TfL will continue to monitor the operational aspects of the scheme, and will continue to address with its contractors, any area where it is considered improvements need to be made.

Congestion charge payments

6.6 Payment levels have remained relatively constant since the second week of the scheme at an average of around 108,000 payments per day. These comprise 80,000 £5 payments, plus discounted payments that account for the equivalent of around 16,000 residents' vehicles per day, and fleet account payments for some 12,000 vehicles per day. There was a small reduction in payments over the Summer months that reflected the lower levels of traffic during the holiday season.

6.7 The current split of payment channels is as follows:

- 35% via retail outlets
- 25% paying through the internet
- 20% via the call centre, of which 7% use an automated payment system
- 19% using mobile phone text messaging
- under 1% by post.

6.8 This follows a very similar pattern to that reported in *Congestion Charging: Three Months On*. The proportion of sales via retail outlets has remained largely consistent since charging commenced on 17 February. Of payments via retail outlets, 91% are through 'Paypoint' machines in shops and petrol stations, with the remainder through self-service machines in central London car parks.

6.9 Of the Paypoint payments, 43% are made inside the charging zone and 49% at other locations within the M25. Around 77% of Paypoint payments are at shops, and 23% at petrol stations. This reflects the level of provision of each type of outlet; but while there are fewer petrol stations where the charge can be paid than there are shops, petrol stations are still some of the most-used outlets.

6.10 Mobile phone text messaging has proved to be an increasingly popular payment method, with payment share increasing from 12% in the early weeks of the scheme to around 19%. Postal payments continue to be negligible and are made up almost entirely of payments by residents when registering for the discount.

Registrations

6.11 Registrations to 28 September 2003, enabling chargepayers to use various payment methods, are as follows (to the nearest hundred):

Fleet Accounts	1,700
Text Messaging	177,300
Fast Track	453,300 (includes registration for certain discounts)

6.12 The registration figures for fleet vehicles and 'Fast Track' cards have remained relatively static since *Congestion Charging: Three Months On*. There has been a 22% increase in registration for payment by mobile phone text message, which is a welcome development given the efficiency and ease of payment the text message service offers. Currently, registration for mobile phone text messaging is the only one of these categories that continues to increase, at an average weekly rate of 1,700 new registrations in September 2003.

6.13 Around 1,700 Fleet Accounts are active, with over 120,500 vehicles registered in total. The number of vehicles registered to each account varies, but a minimum of 25 vehicles is required to open a Fleet Account.

Registration for discounts

6.14 Cumulative totals for the week ending 28 September 2003 are:

Blue Badge holders	113,800
Residents of the zone	26,800
Alternative fuel vehicles	4,300
Vehicles with 9+ seats	9,000
Other discounts	900

6.15 As expected, most applications for discounts were made during the period leading up to 17 February 2003. Since that date the number of new discount applications has reduced significantly and now represents some 1,800 per month.

6.16 On a typical daily basis the use of these discounts by vehicles travelling in the congestion charging zone is as follows:

Residents' vehicles	16,000
Vehicles used by Blue Badge holders	6,000
All other discounted vehicles	4,000

Call centre

6.17 Following 17 February 2003 payments or enquiries via the call centre fell from 167,000 to around 70,000 per week over the Summer months. Around a quarter of these calls are for congestion charge payments. The reduction in call volumes since February is explained by increased public awareness of the scheme both in terms of policy and its operation, and reduced use of the call centre for payments.

6.18 Average call time reduced from just over three and a half minutes in the early weeks of the scheme, to below three minutes after three months of operation. This reduction in average call time has been sustained.

7 ENFORCEMENT

TfL is actively enforcing the scheme and further improvements are planned.

7.1 There are no tollbooths or barriers around the congestion charging zone and no physical tickets or passes. Instead, drivers or vehicle operators pay to register their vehicle registration number on a database for journeys within the charging zone.

7.2 Cameras capture images of vehicles entering, driving within or leaving the congestion charging zone, and the registration number plates are interpreted by the ANPR (Automatic Number Plate Recognition) computer system.

7.3 Once a registration number has been matched, showing that the driver has paid, or does not have to pay the charge (because the vehicle is exempt or 100% discounted), the photographic image of the vehicle is automatically removed from the database. Images of vehicles where no charge has been paid are re-examined visually before any Penalty Charge Notice is issued.

Penalty Charges

7.4 Failure to pay the congestion charge results in a Penalty Charge Notice (PCN) of £80 being issued to the registered keeper of the vehicle. This is reduced to £40 for prompt payment within 14 days. Failure to pay the penalty charge within 28 days results in the penalty being increased to £120.

7.5 Since the start of charging, PCNs have been issued on average at a rate of 106,200 per month.

7.6 As reported in *Congestion Charging: Three Months On,* problems experienced in the early weeks of the scheme have been significantly reduced. Examples were vehicle keepers being sent a PCN due to a chargepayer providing, or the contractor entering, incorrect vehicle registration details or day of travel. Drivers continue to become more aware of how the system operates. Additionally a range of improved quality control measures were introduced in Spring/Summer 2003 to tackle this issue, with chargepayers being prompted to ensure their details are correctly recorded.

7.7 Following re-negotiation of the main contract for congestion charging as outlined in Section 6, a number of improvements to the enforcement service are programmed to be introduced between October 2003 and March 2004. These improvements include more processing staff and upgraded systems and processes to improve data quality and customer service.

7.8 This is expected to result in an increased number of PCNs being issued from October 2003 and increased efficiency in the processing of representations. This will, in turn, reduce the number of appeals and improve compliance, payment levels and scheme revenues.

Payments of penalty charges

7.9 The rate of payment of PCNs has steadily increased since the start of the scheme. 61% of PCNs issued in August were paid by the end of September. Payment levels are expected to increase further over time, as people who have been issued PCNs begin to recognise that the enforcement process is effective and that debt will be actively pursued.

Representations

7.10 There has been a significant reduction, month on month, in the number of representations made by vehicle keepers in response to the issuing of PCNs. The proportion of PCNs against which representations are made has fallen from 62% in the early weeks of the scheme to the current level of 16%, indicating increased familiarity towards the scheme and improvements in the operational systems.

7.11 Approximately 55% of representations are currently being accepted by TfL, compared to 66% three months ago.

Appeals

7.12 As at the end of September, around 14,200 appeals had been registered at the Parking and Traffic Appeals Service (PATAS), averaging a little under 2,000 a month, and less than 2% of all PCNs issued. The first hearings by the independent adjudicators appointed by the Lord Chancellor were held in the week beginning 14 April 2003.

7.13 To date, TfL has processed some 10,600 of the appeals received from PATAS. This represents 1.6% of all PCNs issued. As a result, just under 4,000 appeals have been heard by the adjudicators, of which approximately 51% were found in favour of TfL. On-going improvements are expected to reduce the proportion of PCNs that reach appeal.

Debt collection

7.14 In cases where a PCN is still not paid after sixty-three days, TfL passes a warrant of execution for the debt to bailiffs in order to collect payment. Just over 26,600 warrants of execution have been issued to bailiffs between mid-June and the end of September.

Persistent evasion

7.15 TfL has powers to remove or immobilise vehicles of persistent evaders, defined as drivers who have failed to pay three or more outstanding PCNs, with no representation or appeal pending.

7.16 In order to allow the scheme to settle down, TfL delayed the vigorous exercise of powers to remove and impound vehicles for a number of months. However, between the summer and mid-October, over 110 persistent evaders have had their vehicle clamped or removed by TfL. The number of vehicles clamped or removed is expected to increase over the coming months.

8 PUBLIC INFORMATION

Public understanding of the scheme is generally good.

8.1 The public information campaign continues to support the operation of the congestion charging scheme. As would be expected, this is at a considerably lower level of activity than the campaign undertaken before and around the start of the scheme.

8.2 Key details about the operation of the scheme and its enforcement process have been targeted at both frequent and infrequent drivers, including overseas visitors. A 'petrol pump campaign' commenced in October 2003 to reinforce these messages and to ensure that drivers coming to central London are aware of the scheme and know what to do.

8.3 Furthermore, congestion charging contact details are included in each edition of *Metro* – a free daily London newspaper; and regular articles, reminding people of key features of the scheme are included in *The Londoner* – a GLA produced newspaper that is delivered free to all households within Greater London.

Public awareness and understanding

8.4 The level of public awareness and understanding of the scheme continues to be monitored using quantitative attitudinal surveys and qualitative focus groups (commissioned as advice to the Mayor). Together with data on the scheme's operation, this feedback is used to evaluate and adapt the continuing public information campaign.

8.5 The findings suggest that most of those who need to, have a reasonably good understanding of the purpose and general operation of the scheme.

8.6 There is generally a good appreciation of the key operational details of congestion charging, such as the level of the charge, availability of payment channels, and times when charging applies. For example, around 75% of London residents – many of whom do not drive in the charging zone – are aware that congestion charging does not apply at weekends. This rises to 90% for those who do drive in the congestion charging zone.

8.7 There is anecdotal evidence that drivers to central London from outside Greater London have less awareness of details of the scheme. This is partially supported by survey information, though numerically, these are a relatively small proportion of all drivers to central London.

8.8 There is evidence that drivers' preferences for particular payment methods were established very early on and appear to be habitual. This is confirmed from the split of payment methods, which has remained fairly consistent since the start of the scheme, with the exception of mobile phone text messaging as reported in Section 6.

8.9 Half of drivers in the congestion charging zone say they are aware of the £80 Penalty Charge or £80 reduced to £40 for early payment. Amongst London residents, nearly two thirds believe that it is not easy to get away without paying the congestion charge. Around 20% 'don't know' and 10% to 20% consider it is easy to drive in central London and get away without paying the congestion charge.

8.10 The numbers agreeing with the statement 'if they can get away with it, good for them' has reduced significantly from around 30% to under 20% among drivers who enter the charging zone. Around 50% of London residents believe it is breaking the law if the charge is not paid. Furthermore, around 40% believe that people who evade the congestion charge are cheating Londoners out of improvements to public transport.

8.11 On the subject of scheme revenues, 85% of drivers in the charging zone and 80% of London residents are aware that funds raised by congestion charging go towards improving London's transport.

Experience of the scheme

8.12 Around 70% of charge payers say they have not experienced problems with paying the charge. Of the 20% or so who have reported difficulties, these have tended to relate to 'how to pay', 'machine not working', 'call centre busy', 'retail outlet not convenient' and 'difficulties with retail outlet'; as well as a range of other issues.

Reactions to charging

8.13 The attitudinal surveys suggest that up to 20% of London residents have changed their travel arrangements to central London since the start of charging. Early results from a 'recall survey' were reported in Section 3, giving comparable results.

8.14 The more salient changes in travel behaviour are reported as: change of mode; re-routing around the charging zone; travelling outside charging hours; and travelling less frequently to the charging zone. TfL will be examining this data further for the *Second Annual Monitoring Report.*

Support for the scheme

8.15 Since its introduction, there has been growing support for the congestion charging scheme by London residents, with evidence that the scheme is starting to enter the general vernacular of day-to-day living.

8.16 More than 50% of all London residents support or tend to support the scheme; around 30% oppose or tend to oppose it.

8.17 The quality of car journeys to or within central London is thought to have improved by about half of current drivers in the congestion charging zone. Reasons for this include 'less congestion' and 'quicker journeys'.

8.18 Finally, about 70% of London residents consider that the scheme has been 'very effective' or 'fairly effective' in reducing congestion in central London.

9 MONITORING PROGRAMME

TfL plan to publish the 'Second Annual Monitoring Report' in Spring 2004.

9.1 A five year programme of surveys and studies has been put in place. The scope, content and timetable is set out in the *First Annual Monitoring Report*.

9.2 The Mayor is committed to considering adjustments to the scheme, and to its associated traffic management or complementary public transport measures, if evidence suggests this would be appropriate. The monitoring programme is contributing to the Mayor's and TfL's continual review of the performance of the scheme and to a wider understanding of the effects of introducing congestion charging into central London.

9.3 Achieving a robust and comprehensive understanding of scheme impacts is necessarily a long-term process. Impacts develop, become manifest and stabilise over differing timescales, and the measurement process itself must take place according to a structured timetable, which allows time for the effects to emerge.

9.4 The material in this report has concentrated on key traffic and other transport impacts, that are capable of early measurement. However, much of this data is based on surveys that took place during the Spring and early Summer of 2003. A more complete understanding of traffic and transport impacts on a year-on-year basis will be available in 2004, following the complementary surveys being undertaken this Autumn.

9.5 Similarly, the potentially more subtle impacts on business, the economy, people and the environment cannot be fully addressed until the survey work that will take place this Autumn has been completed and analysed.

9.6 A more comprehensive full report on observed impacts across the range of the monitoring programme will be produced as a *Second Annual Monitoring Report* in Spring 2004.

9.7 All reports will be available on the TfL website www.tfl.gov.uk