

Transport for London

# Central London

# Congestion charging



## Impacts monitoring

Fourth Annual Report, June 2006

## Overview

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## Table of contents

Overview .....	1
Three years on .....	2
Traffic patterns .....	3
Congestion .....	3
Public transport .....	4
Business and the economy .....	5
Accidents and the environment .....	6
Boundary case study .....	6
July 2005 Variations .....	7
Scheme costs, benefits and revenues .....	8
Scheme operation .....	8
Scheme enforcement and compliance .....	9
Monitoring programme .....	9

## Overview

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

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

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

This is the fourth in a series of annual reports describing the impacts of congestion charging in and around central London.

In June 2003 TfL published the *First Annual Monitoring Report*. This described the scope of the monitoring work that had been put in place to ensure that the impacts of congestion charging were comprehensively measured. Conditions applying before charging across a range of key indicators were set out, and information given describing how and when any changes to these indicators would be measured.

In April 2004 TfL produced the *Second Annual Monitoring Report*. This described available information on the impacts of the scheme after approximately one year of operation.

TfL's *Third Annual Monitoring Report* was published in April 2005. This updated and extended the assessment of the impacts of congestion charging based on two years of data following the start of the scheme.

This *Fourth Annual Monitoring Report* draws on the most recent data for 2005, reflecting three years of operation of the scheme, alongside previously published findings for 2004 and 2003. It further extends and consolidates the body of knowledge and understanding now available, enabling commentary on the development of post-charging trends as well as comparisons with conditions before charging started in 2002.

This report also provides initial data on the impacts of the Variations to the scheme in July 2005, consisting of an increase to the basic daily charge from £5 to £8 alongside other related changes to the operation of the scheme. However, given issues of uncertainty in the data, it is not yet possible to give a complete analysis of the impacts.

This report also outlines TfL's proposals for monitoring the impacts of the forthcoming western extension to the central London congestion charging zone.

This Overview summarises the key contents of this *Fourth Annual Monitoring Report*.

### Three years on

- During 2005, congestion charging has continued to meet its principal traffic and transport objectives; and the scheme continues to operate well.
- Traffic patterns in and around the charging zone remained broadly stable during 2005. The changes to the scheme introduced in July 2005 were associated with small net reductions in traffic volumes, and overall traffic patterns are close to those of 2003 and 2004.
- Reductions in congestion inside the charging zone over the whole period since the introduction of the scheme now average 26 percent. This reflects an apparent combined effect of some gains following the July 2005 changes, offset by the loss of decongestion benefits since late 2004.
- However, measurements against a 'static' pre-charging baseline are increasingly inappropriate. In comparison with pre-charging trends, road users in 2005 were probably experiencing an effective 30 percent reduction in congestion, comparable to that in 2003 and early 2004.
- Although a full analysis is not yet available, it is clear that traffic conditions inside and outside the charging zone are being influenced by the reallocation of network capacity to meet other policy objectives, such as improved pedestrian safety and amenity. The effect of the charging scheme therefore needs to be assessed in this context.
- Public transport continues to successfully accommodate displaced car users, and bus services continue to benefit from significantly improved reliability and ongoing investment.
- Further economic trend data and comparative analyses continue to demonstrate that there are no significant net impacts from the scheme on the central London economy.
- Gains in road traffic accidents and reductions to emissions of key traffic pollutants in and around the charging zone continue to be apparent, alongside favourable 'background' trends in both of these indicators.
- The scheme generated net revenues of £122 million in 2005/6 (provisional figures), partly reflecting the charge increases from July 2005. These are being spent largely on improved bus services within London.
- The operation and enforcement of the scheme continue to work well, with several improvements and innovations introduced during 2005.
- TfL's monitoring proposals for the forthcoming western extension to the central London congestion charging zone have now been defined, and baseline data collection has commenced for all key indicators.

## Traffic patterns

- Traffic patterns in and around the charging zone remained broadly stable during 2005. The changes to the scheme introduced in July 2005 were associated with small net reductions to traffic volumes, and overall patterns of traffic are close to those of 2003 and 2004.
- The total volume of traffic (vehicles with four or more wheels) entering the charging zone on an average day during charging hours in Spring 2005 was 1 percent less than the equivalent value for 2004. The total volume of traffic entering the charging zone during Autumn 2005, following the changes to the scheme in July 2005, was 4 percent lower than the equivalent value for 2004.
- Data for early 2006 suggest reductions of 6 percent in traffic (vehicles with four or more wheels) entering the charging zone compared to equivalent counts in 2005.
- Available indicators of traffic circulating within the charging zone for 2005 suggest slightly declining traffic levels. However, road network issues have affected the comparability of counts, and the picture relating to the impact of the July 2005 changes to the scheme is less clear for circulating traffic than for traffic entering the charging zone.
- Measured vehicle-kilometres driven on the Inner Ring Road again fell slightly during 2005. These are now closely comparable to pre-charging values in 2002.
- Volumes of radial traffic approaching the charging zone during Autumn 2005 across a cordon surrounding central London again declined slightly compared to values recorded in the previous year.
- There continues to be no evidence of adverse traffic impacts on roads surrounding the charging zone, and an overall pattern of slowly declining 'background' traffic levels is again evident from various measurements of traffic in inner London.
- Measurements of traffic entering the charging zone at weekends between 2002 and 2005 also show a trend of small year-on-year 'background' declines. There are no obvious direct effects from congestion charging on weekend traffic levels, though peak traffic volumes entering the charging zone on both Saturdays and Sundays exceed those on weekdays for parts of the afternoon and overnight periods.

## Congestion

- Measurements of congestion within the charging zone during 2005 have begun to reflect the long-term 'background' evolution of the road network, with the continuing adjustment of effective network capacities to meet a wider range of traffic and transport priorities.
- Taking the 18 available bi-monthly survey measurements, post-charging reductions to congestion inside the charging zone compared with pre-charging conditions in 2002 now average 26 percent during charging

hours. Looking only at the 2005 calendar year, the average reduction is 22 percent.

- Typical delay values in the charging zone in 2005 were 1.8 minutes per kilometre, compared with 1.6 minutes per kilometre previously reported and 2.3 minutes per kilometre for representative conditions before the introduction of charging in 2002.
- These are lower percentage reductions than those reported for 2003 and 2004, but are still within TfL's range of expectation of between 20 and 30 percent.
- The results need to be understood in the context of longer-term trends to congestion in central and inner London. These suggest that competing demands on road network capacity have meant continuing adjustments to capacity, leading to increasing delays for traffic inside and outside the charging zone. Inside the zone these adjustments would have had a broadly similar effect on network traffic speeds with or without congestion charging.
- These adjustments, in pursuit of other Mayoral transport priorities, have resulted in, for example, improved safety and amenity and increased priority for buses, taxis and cyclists. In simple terms, the moving-motor-vehicle capacity of the network has been adjusted in favour of the people-moving capacity of the network.
- Therefore, comparison against a 'static' baseline for 2002 is increasingly inappropriate. Comparisons based on a projection to 2005 of the long-term trend, in the notional absence of congestion charging, suggest that road users in the charging zone are probably still experiencing reduced congestion of the order of 30 percent.
- TfL continue to record overall reductions in congestion on both the Inner Ring Road and on the main radial routes approaching the charging zone. Conditions in 2005 have shown similar conditions to those previously reported for 2004, and there are still small gains compared with pre-charging conditions on these routes in 2002.
- Measurements of congestion on main roads in inner London for 2005 show a small increase in congestion compared with previous surveys, both before and after the introduction of charging, with average delays of 1.5 minutes per kilometre, compared to 1.3 minutes per kilometre in 2002. Again, this appears to reflect a longer-term trend.

## Public transport

- Numbers of passengers entering the charging zone by bus were not measured directly in 2005. However, the number of bus passengers entering a wider definition of central London in the weekday morning peak was comparable to 2004, at 116,000.
- The availability of bus services continues to satisfactorily accommodate patronage.

- Reliability of bus services in and around the charging zone remained broadly unchanged in 2005, reflecting established gains from both congestion charging and other improvements to bus operations.
- Although 52 people were killed and 700 were injured and there was considerable short-term disruption, the London bombings of July 2005 had little long-term impact on Underground travel. The number of passengers entering central London by Underground increased overall in comparison with both 2003 and 2004, usage in 2005 overall being closely comparable to pre-charging conditions in 2002.

## **Business and the economy**

- The growth of the London economy remained positive in 2005 despite the effects of the bombings in central London in July 2005.
- Businesses performance in the charging zone was significantly better than in the rest of London, particularly in terms of profitability and productivity.
- Updated analysis of comparative trends in various indicators of overall business performance, including change in jobs, business populations and turnover continue to show no evidence of differential effects between the charging zone and comparator locations that might be indicative of a congestion charging impact, either positive or negative, on aggregate business performance in central London.
- Trends in business registrations for VAT, appeals in respect of business rate valuations, and commercial property price trends, do not support the suggestion of a significant congestion charging impact on businesses in central London.
- Although year-on-year retail sales in central London saw a sharp decline throughout the July to September 2005 period, following the London bombings, by early 2006 this trend was reversed resulting in full recovery with annual growth rates above those being seen in the rest of the UK.
- Within the charging zone, the retail sector has increased its share of enterprises and employment since 2003.
- The majority of charging zone businesses continue to recognise that decongestion had created a more pleasant working environment and easier journeys for employees using public transport for travel to work.
- Amongst businesses in the charging zone as a whole, there were more supporters of the congestion charge than opponents.
- An independent review of the monitoring of the economic and business impacts of congestion charging reported that it was reasonable to conclude that the £5 congestion charge had had a broadly neutral impact on the central London economy.



## Accidents and the environment

- 2004/2005 saw substantial further falls in the number of road accidents across Greater London, reflecting wider TfL and borough road safety initiatives.
- Trends in accidents within the charging zone during 2004/2005 have been comparable to those observed elsewhere in London, reflecting broader trends and continuing road safety initiatives, and maintaining the incremental gains from congestion charging.
- Independent statistical treatment of the accumulating time series of road traffic accident data confirm TfL's earlier conclusions that congestion charging has led to additional net reductions of between 40 and 70 personal injury accidents per year within the charging zone and on the Inner Ring Road.
- There continues to be no evidence of disproportionate or detrimental impacts on the more vulnerable road users in or around the charging zone.
- A revised assessment of vehicle emission impacts broadly confirms the scale of estimated reductions in emissions of NO<sub>x</sub>, PM<sub>10</sub> and CO<sub>2</sub> within the charging zone resulting from changed traffic conditions and developments in vehicle technology. They also confirm the broadly neutral impact of congestion charging on emissions in relation to the Inner Ring Road.
- Technical enhancements to the monitoring have led to the identification of a relatively larger contribution to reduced emissions in central London over recent years from changes to the technology profile of vehicles in central London than was previously recognised.
- The combined effect of charging and improved vehicle technology is that NO<sub>x</sub> emissions within the charging zone fell by 13 percent and total PM<sub>10</sub> emissions fell by 15 percent, comparing annual average values for 2002 and 2003 – comparable to the estimates previously reported.
- Measured concentrations of PM<sub>10</sub> within the charging zone have declined somewhat, but this could be for a range of reasons as well as congestion charging. Concentrations of NO<sub>x</sub> have declined slowly, but this has not been matched by corresponding decreases in NO<sub>2</sub>.
- Limited sample surveys of ambient noise in and around the charging zone continue to suggest the absence of a detectable congestion charging impact.

## Boundary case study

- Further monitoring work in a case study area adjacent to the charging zone boundary in the boroughs of Islington and Hackney reveals a similar picture to that previously reported. The impacts of congestion charging remain broadly neutral overall, and there is a continuing absence of 'boundary related' problems associated with the scheme.

- Traffic patterns in the boundary case study area in 2005 remained comparable to those observed generally in relation to congestion charging, with further small reductions to traffic crossing into or out of the charging zone, generally stable flows on the Inner Ring Road, and continuing small reductions to radial traffic approaching the charging zone.
- Public transport trends similarly mirrored those observed elsewhere, with continued improvements to bus service provision, further small increases in bus patronage, and increases in Underground travel – all reflecting wider network trends.
- The economy in the boundary case study is characterised by small businesses, many of which classify themselves as ‘places that customers visit’. VAT registrations show that the number of businesses operating in the area both inside and outside the charging zone was unaffected by the introduction of charging, and independent data show that there has been steady growth in sales since the introduction of charging.
- Businesses in the boundary case study area were broadly supportive of congestion charging and did not report any significant negative effects. Factors such as organisational change, the economy, and the threat of terrorism were seen to have had more of an influence on business performance. There were no significant differences between the attitudes and experiences of business operating just inside and just outside the boundary in this area.
- Trends in air quality in the boundary case study area have followed the inner London trend, as have trends in personal injury road traffic accidents.
- Generally, it has not been possible to identify any specific effects in this boundary case study area that can be associated with the introduction of congestion charging.

### July 2005 Variations

- The charge payment, traffic trend and congestion data now available permit an interim assessment of the impacts of the July 2005 Variations, though seasonal effects mean that these results need to be interpreted with caution. Latest data indicate outcomes broadly within TfL’s range of expectation, but data for earlier months during the latter half of 2005 are less clear, potentially reflecting influences associated with the bombings in central London in July 2005.
- The total number of charge payments valid on a typical day during the latter part of 2005 was about 96,000. This reflects a reduction of about 11 percent over typical payment levels in the first half of 2005. Users of the fleet scheme increased by 8 percent, reflecting the enhancements made to this scheme. The number of residents’ payments remained broadly unchanged, as did the number of chargepayers purchasing monthly or annual charges, despite the financial incentive now available.
- Volumes of traffic entering the charging zone declined by up to 6 percent (vehicles with four or more wheels, equivalent weeks in 2005 and 2006). Taking background trends into account, this suggests that the July 2005

Variations have been responsible for reductions in entering traffic of about 4 percent – towards the lower end of the range of TfL's prior expectation.

- Trends in traffic circulating within the charging zone are less distinct, data for early 2006 indicating overall reductions of between 3 and 4 percent in circulating traffic (vehicles with four or more wheels). Taking background trends into account, this again suggests an outcome towards the lower end of TfL's range of prior expectation.
- There is evidence from across the available data that reductions to potentially chargeable vehicles (cars, vans and lorries) have been partly offset by increases in non-chargeable vehicles (buses, taxis and two-wheeled vehicles).
- Surveys of travel behaviour change by chargepayers in response to the July 2005 Variations indicate that typically two-thirds of vehicle trips in the charging zone are work-related (either for commuting to and from work or for employers' business), and that approximately 60 percent of drivers paying through non-retail and non-fleet payment channels report that they bore the cost of the congestion charge themselves.
- The surveys suggest reductions in chargeable travel to the zone in the range 8 to 17 percent across a range of indicators of travel, these broadly corresponding to the observed changes in payments and traffic levels.

### **Scheme costs, benefits and revenues**

- A revised analysis of the operating costs and traffic benefits of the scheme has confirmed that the £5 charge resulted in net annual benefits of roundly £90 million.
- In financial year 2005/06 the scheme generated net revenues of £122M (provisional figures) including additional net income in the period from July 2005, when the basic daily charge was raised from £5 to £8.
- These revenues have again been largely spent on improved bus services within London.

### **Scheme operation**

- The benefits of TfL's Supplemental Agreement with Capita continue to be apparent, with all major elements of the scheme operating satisfactorily during 2005. Chargepayer satisfaction with the quality of service reached a new high of 78 percent in 2005.
- The July 2005 Variations introduced several changes to the operation of the scheme. In addition to an increase in the charge to £8 and an increase to £7 in the charge for registered fleet vehicles, chargepayers purchasing monthly or annual charges now receive a 16 percent discount, to better reflect their actual usage. The automated fleet scheme is now open to all vehicle types.
- Total valid charge payments reduced after the increase in the daily charge in July, and stabilised at new levels relatively quickly. In the second half of

2005 typically 96,000 charge payments were made per charging day, about 11 percent lower than in the first half of 2005.

- Residents' discount processes were greatly improved, through streamlining the renewal process and aligning the discount and annual charge payment periods.
- Public Information developments in the past year include a downloadable computer desktop reminder to pay the charge, and radio campaign reminding motorists of the hours of operation of the scheme.
- Enhancements have been made to the charge payment channels, including the addition of more PayPoint outlets in petrol stations, and implementation of an express payment option into the interactive voice response system.
- The internet is now the most-used channel for charge payments, accounting for 30 percent of transactions.

### **Scheme enforcement and compliance**

- The number of Penalty Charge Notices issued has continued to reduce throughout 2005. This can be attributed to greater chargepayer understanding of the operation of the scheme, as well as ongoing service improvements and reduced levels of chargeable travel to the zone following the July 2005 charge increase.
- Overall, 21 percent fewer Penalty Charge Notices were issued in 2005 compared to 2004. The percentage of these that resulted in representations fell to a new low of 17 percent.
- Several aspects of TfL's enforcement of the scheme were further enhanced during 2005, including the introduction of new mobile enforcement units.
- TfL's congestion charging enforcement also provided assistance to the Metropolitan Police and other enforcement agencies in respect of criminal activity in and around the charging zone.

### **Monitoring programme**

- The monitoring programme continues to proceed according to the broad plan set out in the *First Annual Monitoring Report*. Various enhancements have been put in place to reflect evolving priorities since the introduction of the scheme, including a supplementary programme of work to measure the impacts of the July 2005 Variations. In general, the arrangements have proven effective in enabling TfL to understand and interpret the changes that congestion charging has brought about.
- TfL expects to implement the western extension to the central London congestion charging zone in early 2007. A comprehensive programme of impacts monitoring work has been defined to reflect this, building on and incorporating the work for the central London zone. Full baseline data collection is being undertaken throughout 2006, with a comprehensive

## *Overview*

report on conditions before the implementation of the extension expected to be published in 2007.