

## **London Congestion Charging Scheme**

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### **ABSTRACT**

London, is a world city with a population of almost 8 million and a very significant daily commuter inflow to the central areas by rail from as far away as 100 miles. In the central area of London, public transport is still the dominant transport mode during the working day. Nevertheless, increasing traffic congestion had reduced speeds to such an extent that average speeds in central London were no faster in 2002 than 100 years before when road transport was still predominantly horse drawn. This congestion also had the effect of making bus transport slow, unreliable and unattractive. With this scenario in mind, the first Mayor of London set transport as a high priority for his first term of office, which is due to end in May 2004. He therefore proposed to introduce a congestion charge to reduce traffic demand in central London and thus combat congestion. Although new financial charges are never popular, there has been a recognition for some time that something has to be done to combat congestion, and a report in the London Evening Standard in September 2002 showed a small majority in favour of the then proposed congestion charging scheme. The paper sets out the details of the scheme, its operational characteristics and presents initial results from the first few months of the operation of the scheme. The presentation will present further results where these are available.

### **KEY WORDS:**

**CONGESTION CHARGING / ROAD USER CHARGING / TRAFFIC  
MANAGEMENT / CITY CENTRE OPERATIONS**

### **INTRODUCTION**

In the United Kingdom there has been considerable debate about the principles of charging for the use of road space for over 40 years. After a number of false starts, the first positive moves came in the late 1990's with legislation proposed and passed in 2000 to enable local authorities, if they so decided, to make a charge either for work place parking or congestion charging (Ref 1). This legislation also includes, for the first time in the UK, provision for the net income from the schemes to be hypothecated to transport projects within the authorities area for a period not less than 10 years. This gives the authorities the incentive to set up the schemes to enable them to fund transport projects, including public transport projects, that it would otherwise not be feasible to include in their programmes.

As a result of this legislation, a number of local highway authorities have put forward proposals for schemes. The first, very small scheme, was launched in the autumn of 2002 in Durham, but the first major test of the legalisation was initiated in London on 17 February 2003.

## LONDON CONGESTION CHARGING SCHEME

London, is a world city with a population of almost 8 million and a very significant daily commuter inflow to the central areas by rail from as far away as 100 miles. In the central area of London, public transport is still the dominant transport mode during the working day. Nevertheless, increasing traffic congestion had reduced speeds to such an extent that average speeds in central London were no faster in 2002 than 100 years before when road transport was still predominantly horse drawn. This congestion also had the effect of making bus transport slow, unreliable and unattractive. With this scenario in mind, the first Mayor of London set transport as a high priority for his first term of office, which is due to end in May 2004. He therefore proposed to introduce a congestion charge to reduce traffic demand in central London and thus combat congestion. Although new financial charges are never popular, there has been a recognition for some time that something has to be done to combat congestion, and a report in the London Evening Standard in September 2002 showed a small majority in favour of the then proposed congestion charging scheme. (Ref 2)

### Transport Strategy

The Mayor's final transport strategy, published on 10<sup>th</sup> July 2001, listed 10 priorities including reducing traffic congestion. (Ref 3) The Congestion Charging scheme for central London was an essential element in the Mayor's strategy. However, as the scheme was larger than any other similar scheme and the first of such a size to be imposed on an existing road network, it was bound to attract considerable political attention. Therefore the Mayor specified that the scheme should be fully operational at least 12 months before the next mayoral elections to ensure that any proposed scheme had time to demonstrate its effects before the election campaigns got fully underway. It was therefore clear that the schemes had to be designed, and implemented to a very tight timescale and that tried and tested technology had to be employed.

## SCHEME DETAILS

In the event the proposed scheme covered a small area of central London of about a two kilometre radius from Charing Cross. The area is bounded by a, mostly good quality, inner ring road and covers the area from Park Lane in the west, Euston Road in the north, Tower Bridge in the east and Elephant & Castle in the south. The inner ring road itself is not included in the charging area.



Figure 1 Congestion charging area

The Scheme is an area charging scheme and makes a charge of £5 (about US\$7.50) for travelling within the area between the hours of 07.00 and 18.30 Mon-Fri inclusive. (Ref 4) There is no charge on Saturdays or Sundays or overnight. It should be noted that the charge is a once per day charge and entitles the vehicle to enter or leave the area as many times as they wish during the day. This should be contrasted to other city schemes which operate on different principles. The Toronto 407 scheme is a closed toll system where vehicles are charged in relation to the distance travelled each time they travel the route. Different charges are applied at certain times of the day. In contrast the Melbourne City Link (MCL) scheme is an open toll system where vehicles are charged each time they pass specific points on the network.

## Exemptions

There are a range of exemptions from the London charges, including motorbikes, buses with more than 9 seats and certain emergency

vehicles. There are also a range of discounts for other vehicles including electrically propelled vehicles and vehicles used by disabled persons, which are entitled to a 100% discount and a 90% discount for residents of the area. The only difference between exempt and 100% discounted vehicles is that, in the former case, the exempt vehicle is automatically not charged whereas, in the latter case, the user must apply for the discount and register with Transport for London who operate the scheme.<sup>1</sup> If the user does not register they will incur

penalty charges. This enables TfL to exercise some control over these vehicles and ensure that only those entitled to the discount do in fact receive it. The scheme is very clearly signed at the entrance to the area and there is ample advanced signing so that vehicles that do not wish to enter the area can turn onto the Inner ring road.



Figs 2 & 3 Logo and typical entrance to area

### Payment options

Payments to drive within the area may be made at a number of payment points throughout London and the surrounding area, by post, telephone, on the web (Ref 4) or using an SMS text message to the payment centre. In the first 4 weeks of the scheme, 36% of payments were made by the retail method and 28% by telephone to the call centre and a total of 31% by Web or SMS. Some fleets also have bulk payment facilities for their fleets. Payment can be made some months in advance, or on the day up to midnight, thus enabling casual visitors to register without penalty after they have entered the area. When payment is made a record is made of the vehicle registration number. This number is then stored on a central database.

### ENFORCEMENT

At every entrance to the charging area an Automatic Number Plate Recognition (ANPR) system has been set up to detect all vehicles entering the payment zone. Pictures of the vehicle and its number plate are then sent over secure lines to the central payment database, where the vehicle registration number is extracted and, after the midnight payment expiry time, compared with the payment database. If payment has been made the image is subsequently destroyed, but if not, a request is made to the national vehicle registration database for the owner of the vehicle and a penalty payment notice will be issued. In addition to the ANPR equipment at the entrance to the charging zone, most exits are also

checked and there are a number of additional cameras inside the zone itself. There are also mobile units that check randomly within the charging area and any vehicles that are detected with more than three outstanding penalty notices are liable to be clamped or towed. Thus there is a high degree of redundancy in the system and good confidence that the vast majority of vehicle registration numbers will be successfully collected. In the event this confidence has been shown to be well founded. Experience with the first few weeks of operation have shown that on average vehicles are recorded about four times for each journey into the charging area.



Fig 4 CCTV cameras on entrance to Area

#### TRAFFIC MANAGEMENT

As the London scheme was by far the largest scheme in the world to attempt such a charging regime, the effects on traffic could not be fully estimated before the scheme began. Although the scheme was surrounded by good quality roads, which were already signed to take all through traffic, it was known that some drivers did choose to travel across the central area, possibly because of congestion in the surrounding area. It was not known how many of these vehicles would in fact divert away from the area. It was also not known how many would elect to try to park in the immediate vicinity of the area and take public transport for only the final part of their journey. There was already a programme of traffic management measures designed to reduce through traffic and encourage the use of the inner ring road. To ensure that the scheme operated well from the start, this programme was boosted to ensure that the inner ring road was as effective as possible and to prevent any major diversions of traffic into the surrounding areas. This programme included a revision of traffic signal timings in the area and also some limited additional traffic management in surrounding areas.

In addition 300 additional buses were put on the streets so that enhanced public transport services were in place before the charging scheme was instituted. Further enhancements, including improvements to the Underground rail network

are planned to be funded from the receipts of the scheme, but inevitably many of these projects will require a much longer timescale to achieve.

## RESULTS

Although it is too soon to be sure of the effects of the charge, it is clear that in the first few weeks of operation the scheme has been a success. Traffic flows in the central area have fallen by around 20% with typical payments from vehicles moving within the charging area of between 95,000 and 101,000 each week day. There are just under 15,000 penalty notices being issued each week (about 3% of total chargeable traffic). These levels have been maintained over the first ten weeks of operation. Traffic speeds in the central area have also risen substantially. This has had the particularly beneficial effect of improving the quality of the bus services in the central area and enabled a more efficient service to be instituted, with better frequencies, more reliability and shorter journey times. Surveys have shown that bus delays have fallen by over 50% in the central area, and lost mileage due to congestion has fallen from 2.5 to 3% to less than 1.5%. Interestingly, in the first few weeks the radial traffic in much of the surrounding area has also fallen by a small amount, suggesting that vehicle drivers who decide not to come into the central area because of the charge, may be travelling into the central area by public transport from a considerable distance, not simply parking as close to the area as possible and completing their journey by bus or metro. There is also little evidence of any diversions of traffic away from the central area to other roads. At present it is not possible to accurately determine the effect on the public transport usage, although bus patronage has risen by about 6,000 passengers per day since the introduction of the charges. In this respect it should be noted that London is unusual in the UK in that in the central area public transport usage is already very high. Therefore, even if a substantial proportion of those displaced by the charge do transfer to public transport modes, the percentage change in ridership will be small. The initial indications are that ridership has risen on all modes, but at the time of writing, it is too soon to say whether the changes are a direct result of the charges or as a result of the improvement in public transport services or a combination of the two. There have been some interesting side effects of the charge. Whilst no one likes to pay an additional charge, many freight companies are reported as being pleased with the outcome, the reduced traffic having led to improvements for the freight and delivery drivers in the area and there are some reports of some of these companies reorganising their fleets to provide a better service with fewer vehicles as the vehicles can move around more easily. There are also noticeable changes to car park tariffs in the central and surrounding areas as car park owners, almost exclusively in the private sector, seek to rebalance their car park occupancy rates to reflect the new situation.

## FUTURE POSSIBILITIES

What of the future? Despite a vigorous press campaign against the charges in some quarters, it is clear that the overall scheme is a success and has largely achieved its aims of reducing traffic congestion. As currently set up, the scheme is a blunt instrument as a traffic management tool, but it does have the significant advantage of being simple for users to understand. However, with a successful scheme in place it is now possible to consider migrating towards an electronic charging regime that would enable variable charges to be instituted at different times of day or for different areas of the charging zone. In a similar vein, the scheme could be extended to other areas. One of the major hurdles to be overcome with any electronic scheme will be to ensure interoperability so that vehicles entering more than one scheme area are not faced with multiple operating regimes. This will require careful management, but there is no doubt that the use of charging as a traffic management tool to manage congestion in historical city centres has been shown to be a feasible and effective tool.

## REFERENCES

Ref 1 Road User Charging and Workplace Parking Levy: Greater London Authority Act 1999

Ref 2 46% in favour 43% against

Ref 3 Congestion Charges: A route to an easier life. Public Service Review: Transport Local Government and the Regions, Winter 2002

Ref 4 Full details of the scheme can be found on [www.cclondon.com](http://www.cclondon.com)

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