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# ROAD SENSE

**BALANCING THE COSTS AND  
BENEFITS OF ROAD WORKS**

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*London First*

London First would like to thank the following contributors, who have advised us in the development of this report:

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- AECOM
- Central London Forward
- Crossrail
- DHL
- First Group
- Greater London Authority
- RAC Foundation
- Thames Water
- Transport for London

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- City of London
- Crossrail
- EDF
- Laing O'Rourke
- London Borough of Camden
- Skanska
- Thames Water
- Transport for London

Colin Buchanan, who were commissioned by the steering group to carry out some of the analysis which underpins this report. Copies of the *Road Works Count!* report are available from London First – contact 020 7665 1500.

A number of other organisations and London First members have contributed to the discussions around the themes in this report and we would particularly like to thank Canary Wharf Group, J Sainsbury, PricewaterhouseCoopers and NJUG for their support.

This is a London First report and does not necessarily represent the views of any individual or organisation participating in its development.

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# INTRODUCTION

As well as being thoroughfares for people and vehicles, London's roads are conduits for vital utilities, with water, energy and telecommunications infrastructure running beneath them. It is therefore essential to London that road works are undertaken – to maintain, repair and improve the roads themselves and to keep the vital networks beneath fit for purpose.

However the traffic congestion road works can cause is a major problem for the capital. According to Transport for London, road works account for 38 per cent of the most serious and severe traffic disruptions across London at a total cost of £752 million.

In response to the concerns of our members regarding increasing congestion, London First conducted this study, working with highway authorities, utility companies, road users and engineers to develop an approach to better balance the competing demands placed upon London's roads and to seek to minimise the inevitable disruption and congestion that road works cause.

**“A new system of financial incentives is needed, to encourage improvements to coordination and duration of works, so as to reduce the disruption they cause”**

Currently, neither utility companies nor highway authorities pay for their use of road space when carrying out works. While they naturally regret any disruption caused, they impose a congestion cost on road users – in terms of slower and less certain journey times and poorer air quality – without any direct financial cost to themselves.

Our report concludes that a new system of financial incentives is needed, to encourage improvements to coordination and duration of works, so as to reduce the disruption they cause.

# CONTEXT

Congestion creates daily problems for everyone moving around London: tourists, couriers, business travellers, commuters, developers, deliverers and the emergency services. Journeys are slower and the time they take is less predictable, while pollution is increased, adding to businesses' costs and reducing the quality of life for residents and visitors.

At its simplest, congestion is a function of demand for road space outstripping supply. Alongside an increase in demand, pressures on road space in central London have been compounded in recent years by two further factors:

- traffic capacity has been reduced as road space has been reallocated to pedestrians and the public realm and dedicated to buses and cyclists; and
- the number of road works has grown to an all time high. Factors include major gas and water mains replacement programmes required by the HSE and Environment Agency respectively, along with cable replacement programmes and action to meet the growing demand for broadband, as well as repairs to potholes caused by adverse weather. There were estimated to be approximately 500,000 road works in London in 2009<sup>1</sup>, lasting on average three to four days each. In other words, there are around 5,000 road works taking place on any particular day. London has 34 highway authorities and currently over 100 utility companies who undertake road works on an approximately 50:50 split.

This large number of road works has exacerbated the fragility of an already overloaded road network – which is reliant on a very small number of key strategic east/west and north/south roads in the central area, some of which belong to Transport for London (TfL), the London-wide transport authority, and some of which belong to individual London boroughs.

## London's Road Network<sup>2</sup>

TfL is the highway authority for 580km of London's roads, the Transport for London Road Network (TLRN), which makes up around 5% of the total road network, but which carries around 30% of London's traffic.

A further 500km of borough roads are designated as the Strategic Road Network (SRN) – these are strategically significant roads in London for which TfL has a Network Management Duty (under the Traffic Management Act).

The next tier of key roads is known as the Borough Principal Road Network (BPRN) – which is owned and managed by the boroughs, and comprises some 1,200km (these are principal, or A, roads).

The 33 boroughs manage, in total, around 13000km of roads in London.



# THE COSTS OF ROAD WORKS

Various studies have sought to estimate the cost of congestion nationally and in London, and the component attributable to road works. We commissioned consultants Colin Buchanan (CB) to carry out an economic assessment of the disruption cost of road works and to investigate the hypothesis that financial incentives might help to reduce this cost. CB has put the total cost of vehicle delays caused by congestion in London at around £4bn<sup>3</sup> per year. TfL believes this figure is closer to £2bn<sup>4</sup> per annum. However both TfL and CB estimate that up to £750 million<sup>5</sup> is due to road works. While these estimates can be challenged, the congestion caused by road works is clearly a significant sum. In CB's calculations, the average congestion cost of *those roadworks which cause significant disruption to traffic* are around £2,000 per road work per hour.

Further details are available in CB's report, copies of which are available from London First.

# THE LONDON PERMIT SCHEME

Until relatively recently the utilities and highway authorities had virtually unfettered access to the road network as and when they required it. There was a system of notices for planned road works to enable some coordination, but that coordination was severely undermined by the high proportion of works undertaken with little or no notice and by the low penalties that could be imposed on utilities for failing to provide notice, as well as the lack of any meaningful penalties for highway authorities themselves.

**“ Permit costs bear no relationship to the duration of the works nor the congestion costs that they are likely to impose on road users ”**

In an attempt to improve this situation, the London Permit Scheme (LoPS) was introduced in January 2010 to strengthen the coordination and planning of road works. The scheme covers all roads in London, whether major or minor, and at its launch some 17 highway authorities, 16 boroughs and TfL were signed up to participate. Borough attitudes to the scheme vary, and although 26 have now signed up in principle, many have yet to implement the scheme.

Under the LoPS scheme, anyone planning works is required to apply for a permit before they can begin. The intention is to make highway authorities aware of all planned works, so that it is possible for them to challenge the methodology and duration of works where necessary and to coordinate works in an area to reduce disruption. This requirement applies to both utility companies and highway authorities.

The LoPS scheme has strengths. It can improve coordination of road works – permits can be issued in such a way that multiple works occur at particular locations at the same time – improving the efficiency of the works and reducing delays. Charging may reduce the number of permits which are not used (so-called phantom events), again improving the potential for coordination. The scheme also strengthens opportunities to reduce road work days through challenge and negotiation of appropriate works durations.

However, the effectiveness of the LoPS model in reducing congestion is limited:

- critically, permit costs bear no relationship to the duration of the works nor the congestion costs that they are likely to impose on road users;
- the scheme applies to all road works on all roads, rather than focusing on congestion on the strategic network, where the costs are greatest;
- LoPS administration represents significant costs for the boroughs. Coordinating works requires skilled, trained staff, and many boroughs do not have this resource nor, given the state of public finances, can we be confident they will decide to prioritise acquiring it. TfL estimates a £37m administrative cost for the public sector, with a permit fee income of just £16m; and
- utility companies also face substantial administrative costs due to the paperwork that has to be processed for each and every work, in addition to the costs of permits themselves. One of the major utilities active in London believes that LoPS will add a total of some £10 million a year to its costs.

# PROPOSED IMPROVEMENTS

## A New 3-Tier System

Concentrating on the parts of the road network that generate the most congestion, seeking to improve coordination and reduce the duration of road works would, we believe, deliver the greatest benefits at the lowest administrative costs. London First therefore recommends the introduction of a new, more focused 3-tier system which would see tighter controls on strategic roads while removing the charge and penalty element on most of London's roads:

### Tier 1: Introduce a London Lane Rental Charge on the very busiest parts of London's road network.

This would require the definition of a new 'Critical Network', comprising the most road work sensitive parts of both the TLRN and the SRN. LoPS permits would still be required for this Critical Network, but would not be subject to charges or penalties. [see box out]

### Tier 2: Charged permit area – remainder of strategic network.

Continue to apply the current LoPS charge and penalty system on the balance of the TLRN and SRN – i.e. on all the remaining parts of the strategic network which are not covered by lane rental charging.

### Tier 3: Don't charge for local roads.

On the remainder of the road network there should be a more light touch approach (similar to that adopted by some highway authorities outside London, such as Kent). This could be done by continuing the requirement for permits, but removing the charge and penalty element of the scheme, so that the boroughs receive information about utilities' works but without most of the administrative overhead. Alternatively, we could revert to a simpler noticing system.

## Emergency works

40% of road works are classified as emergency or urgent and are carried out with minimal notice, which means they cannot be managed or co-ordinated with other works. Our view is that on a very limited part of the newly defined Critical Network (the busiest, most congested hotspots – such as the approaches to the London river crossings) these works should be charged at a premium rate in order to improve coordination and drive investment in maintenance, to reduce future emergencies.

## Reinstatement

It is clear from recent work done by the independent consultancy, Transport Research Laboratory, and some of the boroughs, that utilities' road openings often cause a significant deterioration in the fabric of the highway. They can contribute to a reduction in its useful life and impose additional costs to highway authorities who must then take remedial measures. We recommend that reinstatement work (on tier 1 and 2 roads) which has to be repeated because the appropriate standard has not been achieved should incur a second charge, through the lane rental regime or LoPS.

## Implementation

Applying a lane rental charge in London will require secondary legislation, but our legal advice<sup>6</sup> is that, subject to consultation, a scheme could be implemented quite quickly and be in place by 2012. It is understood that the DfT is about to launch a national consultation on lane rental, with a 3-6 month consultation period. This could result in the necessary powers being in place by late 2011. Our view is that, as the Mayor has recently argued, he should have powers to introduce lane rental in London.



## A London Lane Rental Charge

A London Lane Rental Charge could create material incentives for both utility companies and highway authorities to change behaviour, leading to better, faster ways of undertaking works on London's strategically critical roads.

Administrative costs would be reduced through a lighter touch approach to permitting on local roads and the scheme would potentially generate a financial surplus which could be used by the highway authorities to fund improvements in coordination, as well as complementary staff resource, new equipment and technical innovation. To maximise the benefits of this approach, boroughs, utilities and regulators need to work together to plan, or at least share, their investment programmes going forward.

Given that a large proportion of the Critical Network is likely to be on the TLRN, we suggest that TfL should set the charge rate, in consultation with the boroughs and utilities, with a mechanism to reassess charges over time. As a starting point, lane rental charges should be set at a relatively conservative level so as to assess the impact on behaviour, as well as the costs to service providers.

CB's analysis suggests that the congestion costs of road works in London could be around £2,000 per road work hour at the busiest places on the TLRN. A charge set at this level seems high, at least initially, and CB suggests that a starting charge of £1,000 a day would be more appropriate. They calculate that this could deliver congestion savings of up to £200 million per annum, were it to be applied to the TLRN as a whole. However, targeting a smaller network of the most congested links and junctions produces disproportionate benefits per kilometre.

Performance metrics need to be developed – such as the reduction in road work days, and complementary evaluation of journey time reliability and traffic speeds – before the scheme is introduced. One of the advantages of a price-based system is that the charge can be adjusted up or down to deliver the desired outcome.

Wherever possible, depending on the road and its usage, there would be times when works can be undertaken at no charge (holidays, outside of peak times when usage is in one direction) making the cost, for many works at least, potentially avoidable.

In the longer term, charging will create an incentive for those digging up the roads to invest in more efficient maintenance techniques.

## What might a London lane rental scheme look like?

Without seeking to be prescriptive, we have set out some proposals for the characteristics of a London lane rental scheme.

### Geographical coverage

A 'Critical Network' should be defined by TfL in consultation with the boroughs and utilities, covering areas of the TLRN and SRN which are judged to be essential to facilitating strategic traffic flow. This might include key network links, junctions and hot spots, for example. It could also be extended to cover areas which have critical pedestrian activity, such as areas around mainline rail termini.

### Operational hours/days

Lane rental charges which were applied from 7:00 to 18:00 would effectively cover most congested periods and align with congestion charging.

However, a more targeted approach would be to set key time periods and days of operation as part of the work to define the Critical Network. Peak directions of flow (am and pm) could then be taken into account, as well as the functions of areas at different times of the day, week and year. This could mean that a section of road approaching a junction was defined as part of the Critical Network in the morning peak, but not in the evening – although there will also be cases where some parts of the network will need to be included for the maximum hours of control, or on every day, including weekends.

### Charge rates

As an illustration, the starting point for charges might be as follows:

- Planned work, £1000/day or equivalent;
- Emergency work, £1500/day (to encourage preventative action and correct classification);
- An extra charge for any location where reinstatement works are inadequately carried out – requiring a second remedial visit;
- Discounts for work in 'shadow' of other utility or highway authority work; and
- An additional penalty charge for not informing the highway authority, £2,000/incident (to prevent need to inspect daily).

# IMPLICATIONS FOR UTILITIES AND HIGHWAY AUTHORITIES

The congestion caused by road works represents a substantial cost to the travelling public which is not monetised: it is instead borne through slower and less certain journey times, and poorer air quality.

Of course, these costs are created by the provision of public services so the issue for public policy is not that highway authorities and utilities should somehow be prohibited from maintaining the roads or accessing their networks, but rather how they can be further incentivised to do it in a way which takes account of the costs of congestion, and which strikes a better balance between works costing more but being quicker. Monetising congestion costs, at least in part, will lead to behavioural changes by those digging up London's roads so that congestion is reduced and overall welfare increased.

## Utilities

Currently, utility companies have an incentive to do works to the necessary standard for their networks at the lowest cost. While they naturally regret any disruption caused, it generally has no financial impact. A daily charge, applied on the roads whose smooth operation is most important to the road network, will shift this balance, making time a cost which they will then seek to optimise. As noted above, the level of the charge can be flexed to achieve the right trade off.

Where utilities are subject to economic regulation this cost, like all others, must be incorporated within the price control that the utility receives from its economic regulator, based on an estimation of the level that would be incurred by an efficient operator. The regulator will use the performance of the efficient operator to set the allowed revenues going forward, at their regular reviews. This means that the utilities have an incentive to balance the congestion costs of road works with their other costs and that, over time, the benefits of improved working practices will be passed on to the consumer. Similarly, network operators in competitive markets will face higher costs from lane rental charges and so will seek a competitive advantage by managing more effectively their road works on the limited number of roads where this charge applies. The cost pressures that lane rental places on bills will be offset by the abolition of permit charges on most roads – and, of course, by the reduction in the costs imposed by congestion.

## Highway authorities

London First believes that it is essential that highway authorities are subject to the same discipline and principles as the utilities. Highway authorities already have a client-contractor split between the traffic manager (the client) and the delivery body (the works promoter). Applying a similar charging mechanism, whereby the client bears the costs of lane rental, would create visibility as to the authority's performance and allow monitoring. The authority as a whole would see no financial impact, however, as one part would be paying another.

**“ Monetising congestion costs will lead to behavioural changes by those digging up London's roads so that congestion is reduced and overall welfare increased ”**

Overall congestion reduction targets are set by the Mayor as part of his Transport Strategy, and on this basis it should be possible for TfL to review individual borough performance and link the allocation of LIPs funding<sup>7</sup> to the results, thus providing a real incentive for boroughs to deliver. This monitoring could be reported through a London-wide league table which measured the performance of each local authority. TfL would also report its own performance as part of this process, with pressure exerted by the Mayor, but also, critically, by independent organisations like London First.

There are potentially some practical reporting difficulties: the raw data would need to be adjusted for mileage in each borough to avoid unfairly penalising those boroughs which invest heavily in their networks, who would otherwise fare badly in comparisons with those which undertake little or no maintenance.

# BEST PRACTICE AND INNOVATION

Over the last few years, TfL and the utilities have worked together to improve works planning and coordination with the objective of minimising the inconvenience and disruption that can be caused by utilities' repairs and renewals. Most recently this has resulted in the signing of the *Mayor's Code of Conduct for Road Works*, a voluntary agreement signed by both the main utility companies and TfL. Signatories are implementing a number of best practice measures, such as plating and long term plan sharing.

Recent initiatives by the National Joint Utilities Group (NJUG) have also been addressing best practice. NJUG members are examining how work sites can be better managed, labelled and monitored, so that the public is kept better informed, helping to relieve the frustration of sites appearing to be inactive for long periods of time. With NJUG, the National Underground Assets Group is planning a major London study, to produce a full, updated map of the locations of all underground assets. Available to anyone carrying out works, this realtime information should make it much easier for utility companies to do essential works without accidental damage to their own or other agencies' utility infrastructure. We welcome this initiative.

To complement and support NJUG's proactivity in researching and introducing best practice and innovation, in association with the highway authorities, we have identified a number of areas where improved practices and new ideas and initiatives might be promoted:

## 1. Better information for the travelling public

There has been a marked improvement in labelling of works by the major utilities, but better practice may need to be extended to highway authorities. In particular, we encourage labelling of works which are left apparently idle for long periods, to explain what is happening and the intended timescale for works to restart.

## 2. More use of 'Workathons' for planned works

Workathons involve making an area or a whole road available for a prescribed and planned period of time (e.g. a weekend) for different utility companies to complete a number of works. These have been successful, although they are only appropriate in certain cases and will only ever be used for a small percentage of the works required. Whilst requiring considerable time and resource, workathons pay dividends and should be developed as an important part of future works planning in appropriate locations.

## 3. Night working

There are almost certainly more opportunities for increased night working, particularly on the strategic network, such as the Blackwall Tunnel approaches. More research is needed to explore and understand possible amelioration techniques

(e.g. noise barriers). Local authorities also need to consider better internal liaison arrangements between the highways team and the environmental health teams, so that imaginative solutions are not dismissed without proper consideration. In addition, boroughs could consider offering incentives to affected residents in the form of council tax rebates in areas where strategic works are needed [see box out].

## 4. Use of 'keyhole surgery'

There are undoubtedly opportunities to use innovative techniques, including keyhole surgery. Surpluses from a lane rental scheme could be used to help fund new equipment required for key projects, whilst charges will incentivise this investment by utilities.

### Night working

In looking to avoid congestion costs, working at night would appear to be a very effective solution. There are, however, at least two major reasons why night working can be difficult to implement in practice:

Environmental health regulations generally prohibit road works in residential areas at night because of the associated noise pollution, although this is a matter of interpretation for each local authority; and

Safety must also be taken into account – it can be more costly and difficult for road works to be safely undertaken at night. There is a much higher risk that, for instance, an electrical cable could be accidentally cut due to poor visibility.

There is a balance to be drawn between quiet residential streets, where works cause little congestion and night time working is unnecessary, and busy roads, where congestion costs are very high and night time working could be justified. A flexible approach is therefore required. Boroughs should ask their environmental health officers to offer as much flexibility as they can to facilitate night work, and not simply refuse all requests as a matter of principle.

This approach will be assisted if utilities plan execution of works to enable less noisy activity to be scheduled at night, and also make innovations in the use of noise reducing equipment.

#### **5. Boroughs**

Best practice training should be rolled out between boroughs to increase available resource of competent traffic managers.

A One Stop Shop should be created within each borough for liaison with the utilities, for example on environmental health, traffic planning or parking bays. Boroughs should assign responsibility for this internal coordination to a single individual.

#### **6. Shared 'possessions'**

The introduction of LoPS should increase possibilities for shared possessions – in which utilities work in close coordination with one another on a particular road or area.

#### **7. Coordination at strategic level by regulators**

The main utility regulators – OFWAT, OFGEM and OFCOM – should explore mechanisms to coordinate the utilities' strategic plans, to minimise adverse effects on the road network.

#### **8. Utility Company Boards**

Utility Boards should receive reports on actions and progress in the reduction of congestion and delays.

#### **9. Contractors**

Contractors and subcontractors should always be vetted carefully by the highway authority or utility company responsible for their appointment and only those on an approved list should be allowed to operate on the strategic network, with better supervision by works promoters of sub-contracted labour.

#### **10. Reinstatement**

In some boroughs it is estimated that around 80% of reinstatement work is substandard, adding extra costs through the remedial works which the borough has to carry out, and imposing extra delays on travellers. Whilst anecdotal evidence suggests that the LoPS and the new Mayor's Code of Conduct has improved standards of reinstatement, with better programming resulting in fewer temporary reinstatements, there is still a need to incentivise good performance in this area. As mentioned in 4.3 above, extra lane rental should be charged for locations where remedial works are required due to poor standards of reinstatement. Primarily, this is recommended as a means of incentivising best practice but could also provide an additional funding source to boroughs.

# SUMMARY OF RECOMMENDATIONS

- A London Lane Rental Scheme should be introduced as part of a 3-tier system for controlling London's road works.
- The charging regime should be designed to provide incentives to improve operational efficiencies, reduce the duration of works and thus reduce congestion.
- Lane rental charges should only be applied at congested locations, ie major roads at busy times (including sections of both the TLRN and SRN).
- As highway authority and utility company works both significantly contribute to congestion, both should be subject to similar principles under a lane rental regime.
- For utility companies, lane rental charges efficiently incurred should be passed on to the consumer, as with any other cost.
- For highway authorities, the necessary incentives should be created through an internal market, with the potential to use a league table of performance against agreed measures. The targets for this could be set through the Mayor's Transport Strategy and reviewed by TfL on behalf of the Mayor. Boroughs would be rewarded (or penalised) for their performance through LIPs allocations.
- The objective of any scheme should be to reduce congestion and road works hours rather than to raise money. Any surpluses generated should be used on measures to improve coordination and to develop innovative equipment, as well as training and sharing of best practice, mitigation measures (e.g. plating), and other techniques and projects which help to minimise congestion.
- A premium charge should be applied for emergency works at a very limited number of key strategic locations. The objective of this premium charge would be to incentivise good long-term maintenance practice at these key locations.
- In parallel, improvements should be made to the London Permit Scheme to make it more effective and to minimise the cost of its administration by removing the requirement for charged permits and penalties from all non-strategic roads.
- The impact of any scheme should be measured. Criteria of success might include road work hours, journey time reliability and hours of disruption to network – measured against some indication of what these would have been without a charging scheme.

1 Source: Colin Buchanan: Road Works Count! Report: March 2010

2 Source: TfL

3 Source: Colin Buchanan Road Works Count! Report March 2010

4 Source: Mayor's Transport Strategy (p151, para335)

5 Source: TfL Report to its Surface Transport Panel May 2010 (Roadworks...account for 38 per cent of the most serious and severe [trafic] disruption across London... the total cost of disruption from this work is £752m"

6 Indicative advice received from Ashurst LLP on the legislative process

7 Under the Greater London Authority Act 1999, each London borough council must prepare a Local Implementation Plan (LIP) containing its proposals for implementing the Mayor's Transport Strategy, on the basis of which TfL provides financial assistance to the borough

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