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Developing Road Traffic Reduction Targets for London

Michèle Dix, Director, Halcrow Fox

Talk given to Transport Economists' Group,
University of Westminster
27 January 1999

Michèle joined Halcrow Fox in 1986 where she has been involved in a number of major urban transport projects in Britain, including London.

The talk described the work completed in December 1998 by Halcrow Fox for LPAC (London Planning Advisory Committee), London Transport Buses and central London Boroughs who co-sponsored the study. The study was designed to inform London Boroughs who have a statutory requirement to produce road traffic reduction reports in July 2000⁽¹⁾. The Deputy Prime Minister, John Prescott, has made a commitment to produce a statement on national road traffic targets to Parliament by the end of 1999, and the Commission for Integrated Transport will be looking at the issue as one its first tasks.

The study was designed to produce targets to reduce road traffic which were driven by needs and objectives. This was followed by looking at existing powers and mechanisms and assessing the need for any new powers.

The objective of the study was to develop road traffic reduction targets in two stages:

- Examine the reasons for adopting a traffic reduction strategy and identify a series of needs-based targets for Central, Inner and Outer London.
- Identify the available mechanisms and assess their ability to reduce traffic within an integrated land use planning and transport policy framework.

Some of the reasons why society may wish to reduce traffic are to:

- reduce congestion,

⁽¹⁾ The Road Traffic Reduction Act 1997 placed a duty on all local authorities to publish a report on traffic reduction on roads for which they are highway authority. Interim reports on road traffic reduction are to be produced in July 1999 with the first statutory report as part of the Local Implementation Plan in 2001.

- improve reliability and regularity of public transport,
- improve conditions for non-motorised modes,
- improve the business operating environment,
- improve air quality, and consequently the health of Londoners,
- reduce greenhouse gas emissions, particularly carbon dioxide,
- reduce road accident casualties, and
- improve other environmental ('quality of life') conditions, such as reduced noise, visual intrusion, fear and intimidation, and severance.

The general conclusions drawn by looking at these reasons or 'needs' were that:

- to safeguard the health of Londoners, future traffic levels will need to be reduced by up to 35% in central areas and around 5% in outer areas,
- to meet the UK's commitments to combating global warming it will be necessary to reduce carbon dioxide (CO₂) emissions from London's traffic by between 20% and 25% by 2002,
- to meet Government directives on road traffic accident reductions it will be necessary to reduce London's existing traffic levels by some 15% to 20% by the year 2000, and
- that significant improvement in environmental conditions could be achieved in large parts of London through reducing existing traffic levels by, between 15% and 20%.

All of the above, pointed to the need to reduce current traffic levels by around 15% to 20% across London by 2005⁽²⁾. Preliminary London-wide targets were set so as to require the current number of vehicle kilometres to be reduced by 20% by 2005. This was graduated, with reduction targets of up to 40% in central London and 15% for outer London. These initial targets were discussed with officers from London boroughs and other interested parties during June 1998. The main conclusions were that:

- In Central and Inner London there were no objections to the actual targets suggested (although there were reservations that the targets were too difficult to achieve by the 2005 target date).

⁽²⁾ The target date of 2005 relates to the compliance date for the Air Quality Objectives set out in the National Air Quality Strategy (NAQS).

- In Outer London however, most boroughs thought the needs based targets were too difficult to achieve, especially in relation to the target date and the level of resources and legislative powers available.
- In Outer London it was additionally felt that economic regeneration priorities were more important than traffic reduction.

As a result of the consultation seminars, an overall traffic reduction target of 15% rather than 20% was set and a lower traffic reduction target of 10% was introduced for most Outer London Boroughs. However, for these average reductions to be aimed at solving the worst problems, higher road traffic reduction targets would be necessary in Central and Inner London, with lower targets in Outer London. Based on this assumption, a number of preliminary area-wide road traffic reduction targets were set:

Within the Inner Ring Road	40%
between the Inner Ring Road and North and South Circular Roads	30%
outside the North and South Circular Roads	10%
within 3 kilometres of Heathrow Airport	30%

Subsequently individual Boroughs were set road traffic reduction targets within the range 40% to 10%, taking account of:

- The current (1997) traffic levels (vehicle kilometres driven) within the central, inner and outer areas of London.
- Locations where particulate matter (PM₁₀) and nitrogen dioxide (NO₂) emissions are likely to be unacceptable in terms of the NAQS by 2005.
- The geographical location of each area.

As part of the Stage One work, the South East Institute of Public Health (SEIPH) carried out air quality studies. By predicting air quality in 2005, the potential for a shortfall in achieving NAQS objectives for the pollutants NO₂ and PM₁₀ were identified. As with all predictive models there are associated uncertainties and the method used by SEIPH is no exception. Uncertainties include:

- predictions of future vehicle stock and associated emissions;
- the measurement of air pollution; and
- the inter-annual variability of predictions, dominated by changes in

meteorology.

In view of these uncertainties a number of sensitivity tests were undertaken to indicate the robustness of the overall conclusions. These included an assessment of the impact of:

- changes in travel speed;
- changes in specification of the vehicle fleet; and
- reduced success rate for new technology.

The 2005 predictions of NO₂ and PM₁₀ concentrations across London assumed that it would be possible to achieve the Government's forecast improvements in fuel and vehicle technology. However, in reality this may be difficult for two reasons.

First, it will be difficult to enforce high standards of vehicle maintenance to ensure that new vehicles perform at optimum levels; and

Secondly, there may be significant differences between the 'factory' and 'on-street performance' of new vehicles.

For these reasons, a 75% success rate in terms of implementing and enforcing new technological improvements was used in the future modelling of NO₂ and PM₁₀ concentrations. It was considered that these predicted conditions would arguably be more representative of conditions in 2005. The Government's consultation paper '*Sustainability Counts*' (November 1998) which sets out a series of 'headline' indicators for sustainable development acknowledged that "*if traffic continues to increase then particle emissions will rise, particularly for diesel cars and light goods vehicles, despite further improvements to engine technology.*"

Stage Two of the Study

Stage Two assessed the practicality of the 'needs' based traffic reduction targets set out in Stage One. Initially, this involved an examination of the type of traffic reduction mechanisms currently available to local authorities and Central Government (and those which might be available in the future), and the effectiveness of these mechanisms to reduce traffic levels in London. The work, which was desk-based, drew heavily on the findings of previous and current studies of road traffic reduction policies, as well as the consultant's own research into devising sustainable transport policies for London.

The work revealed that in order to achieve the traffic reduction targets set in Stage One of the study, it would be necessary to introduce policy changes *throughout* London. Such policies would need to reduce car usage by drawing on at least one of three basic approaches, these being:

- reduce private car dependency;
- encourage use of alternative travel modes to the car; and
- reduce the overall need to travel.

Based on current experience, both in the UK and elsewhere, there are a number of specific mechanisms capable of delivering road traffic reduction, each with varying levels of success. These include:

- *Using the land use planning system to reduce the need to travel* by influencing the location, type, density and mix of development, and by adopting restraint-based car parking standards.
- *Increasing the attractiveness of public transport (especially buses)* through fare reduction, improved service frequency, improved comfort and convenience, extensions to the area of service provision, and road space reallocation to give greater priority.
- *Increasing the attractiveness of non-motorised modes*, i.e. cycling and walking, by reallocating road space to give them greater priority and by providing high quality and safe conditions within which these activities can take place.
- *Discouraging car ownership* through increased sales or road fund taxes.
- *Discouraging car usage through travel related charges* by introducing a fuel tax surcharge, cordon charging, supplementary licensing, or congestion charging.
- *Discouraging car usage through parking controls* by increasing the cost of public on-street and off-street parking charges for long and/or short stay spaces, by introducing charges on private non-residential (PNR) long and/or short stay spaces, by removing parking spaces, or by the introduction/extension of Controlled Parking Zones.
- *Other initiatives*, such as the adoption of *green travel plans*, the implementation of '*safe routes to schools*', the promotion of *travel awareness campaigns* and more sustainable work practices such as *teleworking*, and the introduction of *high occupancy vehicle lanes*.

Impact of Traffic Reduction Mechanisms

Having explored the range of traffic reduction mechanisms available to local authorities and Central Government, and the potential of each mechanism to bring about traffic reduction, the composition of London's traffic was examined. This represented the first step to understanding the potential that a *package* of traffic reduction mechanisms might have on securing the required levels of traffic reduction. Trip composition was examined in three different considered to be representative of Central, Inner and Outer London. The chosen case study areas were:

- Central London The area of Westminster within the Inner Ring Road
- Inner London The north-western sector of Greenwich
- Outer London The area around Kingston Town Centre

Within each study area, traffic activity was sub-divided by both *journey purpose* and *geographical orientation* for a typical 16-hour day. The journey purposes were chosen to represent different activity groups, each of which are likely to have a differing level of dependence upon the car. Similarly, the geographical orientation of vehicular trips was assessed, as car dependency is also based upon the availability of alternative modes of travel.

The traffic reduction effects of the mechanisms were applied to the three case study areas, to determine whether the targets were achievable. The traffic reduction effects of each mechanism were quantified for the three case study areas by using demand responsiveness to changes in the cost of transport, and applying these to each type of journey. This allowed the reduction impact of a mechanism (in terms of vehicle kilometres driven) to be calculated.

Detailed examination of the potential impact of each of these mechanisms to achieve road traffic reduction, led to the conclusion that the greatest contribution to meeting the targets will come from mechanisms that seek to discourage car usage through travel related charges and parking controls. However, whilst these two individual mechanisms are considered to be the most effective means of reducing road traffic, the significance of other mechanisms should not be discounted in supporting the overall approach and in providing high quality alternatives to the car. Indeed, only through a combination of all of these mechanisms can a level of road traffic reduction approaching the recommended targets hope to be achieved. Table 1 sets out estimated changes in vehicle kilometres of applying the mechanisms based on trip elasticities obtained from other studies.

Table 1: Summary of the Overall Traffic Reduction Impacts of Differing Traffic Reduction Mechanisms

Mechanism	Overall Traffic Reduction Impact (% Reduction in Vehicle km)		
	Central Area	Inner Area	Outer Area
Public Transport Improvements			
Reducing Public Transport fares by 50%	4.6	4.7	4.2
Upgrading Bus Services to LRT standard	2.3	2.3	2.1
Providing good Public Transport Accessibility	2.1	4.8	6.6
Enhancement of walking and cycling	2.3	4.0	4.2
Central Area Cordon Charge only			
Inbound charges - £2.00	7.2	0.4	0.1
Inbound charges - £5.00	27.3	1.6	0.3
Inbound charges - £10.00	43.5	4.3	0.9
London-wide Cordon Charges			
Inbound charges - £2.00, £1.00 and £0.50	8.3	3.1	0.2
Inbound charges - £5.00, £2.50 and £1.25	31.6	9.6	0.6
Inbound charges - £10.00, £5.00 and £2.50	48.4	27.0	1.8
London-wide Supplementary License Charges			
Daily charges of £ 2.00, £ 1.00 and £ 0.50	15.7	5.4	2.1
Daily charges of £ 5.00, £2.00 and £ 1.00	34.5	29.2	7.6
Daily charges of £ 10.00, £ 5.00 and £ 2.50	47.2	49.5	20.6
London wide Distance/Congestion Charges			
Distance related charges of £0.10 per km	4.9	7.4	6.8
Distance related charges of £0.15 per km	8.6	12.9	11.9
Distance related charges of £0.25 per km	18.8	28.2	25.5
Distance related charges of £0.50 per km	47.5	62.2	54.6
Public Long Stay Parking Charges			
Increases in charges of 50%	1.7	1.3	0.9
Increases in charges of 100%	3.4	2.6	1.8
Increases in charges of 200%	6.1	5.0	3.8
Public Short Charges			
Increases in charges of 50%	0.9	1.5	1.8
Increases in charges of 100%	2.0	3.7	4.1
Increases in charges of 200%	4.1	8.0	8.9
Private Non-residential Charges - Long Stay			
Annual charges of £ 900.00	0.1	1.3	4.5
Annual charges of £ 1500.00	1.0	3.5	8.4
Annual charges of £ 3000.00	6.7	10.5	17.6
Annual charges of £ 5000.00	13.0	17.8	26.0

The mechanisms have the following broad effects:

- Improvement of public transport must form an integral part of any traffic reduction strategy but, in its own right, it has a small effect.
- Similarly, improvements in facilities for walking and cycling are an important element of any strategy, although they lead to small levels of traffic reduction when introduced in isolation.
- Cordon charging appears to be an appropriate mechanism for achieving traffic reductions in both Central and Inner London. In Outer London however, where the majority of trips occur wholly within the Outer London area it appears to be inappropriate.
- The impacts of supplementary licensing differ depending on the approach. A simple system based on charges for vehicle presence has similar, albeit lower, impacts than cordon charging. A scheme based on usage charges however, could be effective in reducing traffic throughout the capital.
- Distance/congestion related charging is most appropriate when applied over both the Central and Inner areas of London or London-wide. It could therefore form a second stage of any traffic reduction strategy, with Central and perhaps Inner London cordons or supplementary licensing schemes being introduced first, and then a London wide distance/congestion charging system being substituted later.
- To have any significant overall reductions in traffic levels, there would have to be substantial increases in both public long stay and public short stay parking charges. This reflects the small size of the target groups.
- PNR parking charges appear to achieve significantly higher levels of traffic reduction in Outer London than elsewhere, for any given charge. This reflects the composition of traffic in Outer London, the extensive availability of PNR parking and the lower monetary values placed on such work place parking spaces. However, the actual impact of PNR parking charges will be dependent on whether the employer or employee eventually pays and the extent to which alternative on-street parking is available.
- Although the other initiatives such as green travel plans are an essential part of any traffic reduction strategy they will, on their own, have a small impact on overall traffic activity.

The Components of a Strategy for Road Traffic Reduction in London

In terms of the *components* of a strategy for road traffic reduction in London, the study concluded that different mechanisms are more effective in different areas. Cordon charging and supplementary licensing being most appropriate in Central and perhaps Inner London, and a workplace parking levy being most appropriate in Outer London. Congestion charging is a mechanism that would be most effective when applied across the whole of London. It has also been concluded that fiscal measures will not work if introduced in isolation. This is due to two key factors:

- The introduction of charges related to car travel or parking would reduce the individual's ability to travel by private car. Without complementary improvements in public transport, non-motorised modes and the encouragement of car sharing, there could be a general reduction in overall accessibility, thus the strategy would have a negative impact on economic vitality.
- Where mechanisms only target specific groups of people, for example commuters or shoppers, there would be a tendency for reduced congestion to lead to trip generation amongst other groups. A gradual reallocation of road space from the car to walking, cycling and buses must therefore also form part of the strategy.

Evidence from other studies suggests that the long term impact of specific traffic reduction mechanisms can be up to three times greater than the short term impacts, primarily because, over time, individuals tend to readjust their lifestyles to minimise the need to incur punitive private car based travel costs. The adoption of stronger land use planning policies aimed at reducing the need to travel, deterring car use and encouraging more sustainable means of travel, could all help to accelerate the delivery date of these longer term benefits. Land use planning policy should be an important part of a strategy for reducing road traffic in London. In addition, it is clear that any such strategy will only be successful if owned by the public at large, rather than imposed by professionals and politicians. To this end, the strategy should also include active travel awareness and education initiatives.

To summarise, a strategy for road traffic reduction in London will need to include all of the following components, in the short to medium term at least, if it is to be effective:

- the introduction of cordon charging or supplementary licensing;
- the extension of long stay on-street parking restrictions;

- increases in both long and short stay public on-street and off-street charges;
- the introduction of a workplace parking levy;
- improvement in quantity and quality of public transport services (especially buses in the short to medium term);
- improvement of conditions for pedestrians and cyclists;
- the reallocation of road space to pedestrians, cyclists and buses;
- the introduction of voluntary forms of traffic restraint, such as green travel plans and ‘safe routes to schools’;
- stronger planning policy, both locational and site specific, giving priority to town centres; and
- the introduction of travel awareness and education initiatives.

The Strategy

The Strategy envisages the early introduction of increased long stay public car parking charges, and the extension of controlled parking zones. Voluntary initiatives, such as green travel plans, ‘safe routes to schools’ initiatives and travel awareness campaigns, would be introduced, aimed primarily at increasing public awareness and laying the foundations for future improvements in alternative transport modes to the private car.

In the medium term, new fiscal measures could be introduced, such as cordon charging in the central area and a levy on workplace parking applied across the whole of London. The levy would initially be limited in magnitude, and would be aimed primarily at redressing imbalances between the cost of using public and private car parking provision. In parallel, public long stay and short stay parking charges, both on- and off-street, would be increased further. The central area cordon charge could initially be set at a level that will deter some 10% of traffic.

Over the longer term, cordon and parking charges could be progressively increased and extended, with cordon charges of around £7.50 at the Inner Ring Road. Workplace parking levies could be steadily increased to the order of £5,000 per annum, per space, and public car parking charges could be increased to three times existing levels. Again, all revenues would continue to be hypothecated, thereby allowing high quality pedestrian, cycling and public transport facilities to be developed throughout London.

Finally, the Strategy envisages that cordon charging would be replaced by London-wide congestion charging. Once this scheme was fully operational, the need for further workplace parking levy and public parking charge increases could be assessed. Table 2 illustrates how a ten-year strategy to reduce traffic could be applied.

Mechanism	Future Year			
	+2	+5	+8	+10
Public Transport Improvements	Low ¹	Low	Medium ¹	High ¹
Improvements to other modes	Low	Low-Medium	Medium	High
Central Area Cordon ²	-	£2.50	£5.00	£7.50
Inner Area Cordon ²	-	-	£2.50	£3.75
Outer Area Cordon ²	-	-	-	£2.00
Congestion Charging	-	-	-	Initiate
Public Parking Charges Increase	20%	50%	100%	200%
Workplace Parking Levy ³	-	£1,500	£3,000	£5,000
Reallocation of Road Space	Low	Low-Medium	Medium	High
Green Travel Plans	Low	Low-Medium	Medium	High
Land Use Planning	Low	Low-Medium	Medium	High
Travel Awareness/Education	Medium	High	High	High

- Notes:
1. 'Low', 'Medium' and 'High' relate to the level of implementation or investment in a particular mechanism.
 2. Prices relate to daily, inbound only charges.
 3. The assumptions behind the workplace parking levy are that:
 - (a) Employees, rather than employers would pay,
 - (b) The cost would be equal across London and is an annual charge,
 - (c) Complementary on-street and off-street parking restraint measures would be introduced in parallel to prevent displacement.

However, the effect of any traffic reduction strategy will be reduced if there is a continuing underlying trend towards traffic growth. An examination of both past trends and future predictions of growth in vehicle kilometres travelled in London has been carried out. This indicates that the likely annual growth in daily traffic levels in Central, Inner and Outer London is of the order of 0.5%, 0.75% and 2.2% per annum respectively. This means an overall increase in traffic levels over a ten-year period of about 5.5%, 8.5% and 27% in Central, Inner and Outer

London respectively.

Thus, Tables 3 (Central London), 4 (Inner London) and 5 (Outer London) also include an indication of the total traffic reduction effect of the Strategy once growth is included, together with the needs based target derived in Stage One of the study. The three tables indicate the following conclusions:

- In all three sectors of London, it will not be possible to achieve the ‘needs’ based traffic reduction targets by the target year 2005, that is the deadline for the achievement of the NAQS Objectives.
- **In Central London**, it will be possible to meet the ‘needs’ based traffic reduction target of 40% by the year 2008, if the Road Traffic Reduction Strategy set out in Table 3 is adopted.

Mechanism	Future year % road traffic reduction			
	2000	2003	2005	2008
Public transport improvements	1	2	4	6
Improvements to non-motorised modes	0.5	1	1.5	2.5
Road user charges	-	10	30	40
Public parking charge increase	0.5	1.5	3.5	6
Workplace parking levy	-	1	6.5	13
Other measures	Small but complementary impact			
Total Road Traffic Reduction (combined)	1%	12.5%	35%	50%
Road Traffic Reduction (after growth)	1%	10%	30%	45%
The ‘Needs’ Based Reduction Target	Reduce to 60% of 1997 levels by 2005			

- **In Inner London**, traffic levels could be reduced to 75% of 1997 levels by 2008 if the Road Traffic Reduction Strategy set out in Table 4 is adopted. This represents a shortfall of just 5% over the ‘needs’ based traffic reduction target of 30% set in Stage One of the study, and given the low level of predicted traffic growth in this sector, it is likely that the traffic reduction target could be met shortly after 2008.

Table 4: Achievement of ‘Needs’ Based Targets - Inner London				
Mechanism	Future year % road traffic reduction			
	2000	2003	2005	2008
Public transport improvements	1	2	6	8
Improvements to non-motorised modes	1	2	3	4
Road user charges	-	-	10	20
Public parking charge increase	0.5	1.5	2.5	5
Workplace parking levy	-	2	7.5	15
Other measures	Small but complementary impact			
Total Road Traffic Reduction (combined)	1%	5%	15%	30%
Road Traffic Reduction (after growth)	0%	0%	10%	25%
The ‘Needs’ Based Reduction Target	Reduce to 70% of 1997 levels by 2005			

- In Outer London**, the adoption of the Road Traffic Reduction Strategy set out in Table 7 will result in traffic levels being reduced to 95% of 1997 levels by 2008. This represents a 5% shortfall over the ‘needs’ based traffic reduction target of 10% set in Stage One of the study. This is the same shortfall as in Inner London, however, given the larger level of predicted traffic growth in this sector, it is likely to take longer before the target can be met. Contrary to common perceptions, therefore, it will be more difficult to safeguard future air quality, road safety and environmental conditions in Outer London than elsewhere. Hence it is in Outer London that most needs to be done to change attitudes towards the use of the private car.

Table 6: Achievement of 'Needs' Based Targets - Outer London				
Mechanism	Future year % road traffic reduction			
	2000	2003	2005	2008
Public transport improvements	1	2	7	9
Improvements to non-motorised modes	1	2	3	4
Road user charges	-	-	-	1
Public parking charge increase	0.5	1	2	4
Workplace parking levy	-	5	10	20
Other measures	Small but complementary impact			
Total Road Traffic Reduction (combined)	1%	7.5%	15%	25%
Road Traffic Reduction (after growth)	-5%	-5%	0%	5%
The 'Needs' Based Reduction Target	Reduce to 90% of 1997 levels by 2005			

Conclusions

A number of key overall conclusions can be made:

- It appears that increasing charges for using the car is the only practical way of ensuring high levels of traffic reduction.
- In Central London, charging mechanisms based on supplementary licensing, cordon charging, congestion charging or parking charges should be introduced in the medium term (if the legislation included in the GLA Bill is enacted, implementation could take place around 2003). However, whilst congestion charging is the most efficient and equitable mechanism it is also the most difficult to introduce. As time progresses, such an approach should be extended to cover Inner and Outer London.
- Outside Central London, traffic reduction measures should initially focus on a workplace parking levy that would be applied across London, and radially-based cordon charging and parking controls in larger suburban town centres.
- Before any other form of traffic reduction is introduced it will be necessary to improve public transport services, especially buses through road space reallocation. This should be done by hypothecating revenues from road user charges and by introducing a base level workplace parking charge. Such revenue streams could be capitalised so that they are available to fund the

early implementation of major improvements to the public transport system. In the longer term, once public transport services are improved, parking controls and road pricing could be extended.

- In conjunction with the above, voluntary forms of traffic reduction should be pursued immediately by the Boroughs to increase road user awareness and to target particular groups.
- Based on these findings and the composition of traffic in Central London, it will be difficult to achieve a 40% reduction in traffic activity by 2005. However, this may be possible by 2008. This means that other approaches to meeting the NAQS Objectives will also have to be pursued (if they are to be achieved by 2005), including further improvements in vehicle emission technology. Innovative measures such as 'low emission zones' (where access would be permitted only to those vehicles meeting a prescribed standard of emissions) and 'Clear Zone' (which promotes the use of low and zero emission vehicles).
- In Inner and Outer London it will be much more difficult to achieve the proposed targets by 2005, primarily because of the time it will take to provide good alternatives for many of the displaced users. Even by 2008, with full hypothecation of road user charges to improvements in public transport and the non-motorised modes (walking and cycling), the proposed targets are still unlikely to be met. However, the shortfall in 2008 is only about 5% and it may be possible to meet the targets shortly thereafter.
- The indication is that provided a radical approach to traffic reduction is adopted in London, the underlying objectives or 'needs' could almost be achieved by around 2008; i.e. over a ten year period with road user charging becoming available in about 2003. Whilst the targets could be achieved in Central London by 2008, because of continued traffic growth the situation in Inner and Outer London is likely to mean that the targets are not met there until shortly after 2008.

Discussion

Peter Gordon (Chiltern Railways) suggested that although traffic congestion is the problem in London by causing pollution, it is in equilibrium.

In reply, Michèle believed that if traffic levels were reduced there would be a need to reallocate space to buses, pedestrians and cyclists. The timing is difficult though with the problem of what to do first.

Peter opined that traffic management schemes are designed to maximise traffic capacity, and asked if there are any guidelines for improving conditions for pedestrians.

The speaker said that it would help pedestrians if there were all pedestrian phases at traffic signals.

Keith Gardner (LPAC) said the first experiment at a diagonal crossing for pedestrians is at Wood Green in North London. It was noted that there is also a conflict between pedestrians and buses.

Derek Done suggested that elasticities in any forecasting model use evidence from the past and, since there are very few examples of people working at home, this will be difficult to model.

The study did look at the impact of teleworking and green transport plans but it would be more effective if there was a fiscal element. There is some evidence from United States and Holland. The effects over time could be greater, e.g. with the M25 where a new piece of infrastructure has allowed people to change job location without moving house.

Keith Gardner agreed that long term changes would be important. He cited the work that LPAC had done with MVA using the LTS (London Transportation Study) model which had given very similar results to the work being discussed this evening.

He raised the issue of winning over the "hearts and minds" as being very important in progressing traffic reduction. He also quoted from that evening's copy of The Standard which had reported a survey of London's company directors: Sixty-nine per cent said public transport should be improved while 53 per cent said traffic levels should be reduced. Eighty-five per cent were also "dissatisfied" with traffic levels.

John Mathieson asked about the political acceptability for draconian measures.

Keith Gardner stated that LPAC members have endorsed the strategy of traffic reduction for the purposes of consultation. They see the value of traffic reduction but that it must be based on need. There could be valuable gains if boroughs "start the ball rolling" by, for example, reallocating road space.

There is a need to break the car culture in London, therefore LPAC is likely to stick to the targets but there may be a difficulty with some of the mechanisms. GOL (Government Office for London) is seeking to provide information on what a charging system could look like so the Mayor could use one⁽³⁾.

Michèle Dix suggested that if the targets cannot be met using the mechanisms described in the presentation that other ways of reducing pollution could be used such as zero emission zones. In central London, taxis are a large part of the traffic and, therefore, zero- or low-emission engines could tackle emissions.

LT Buses also has an incentive to push harder for bus priority to reduce capacity at junctions so as to improve running times and help reduce emissions.

Robert Lane (University of Westminster) asked what assessment had been made of the ability of public transport to cope? For example, the Underground is congested now. Are we certain that alternatives could cope with the increased numbers?

Michèle Dix: if restraint was confined to central London then public transport could probably cope. There would be problems on the Underground but, in the short term, bus improvements would be expected to provide the extra capacity required.

Keith Gardner added that 20-25% of rail capacity is locked up in congestion - Network SouthEast had a large number of improvements that arose out of the Central London Rail Study. Not all of them were expensive but it is now difficult to persuade Railtrack and/or train operating companies to invest if there is a low financial return. If the revenues from charges/levies could be capitalised these investments could be funded.

Peter White added that there are very high charges for rolling stock, which gives a financial disincentive to increase capacity by lengthening trains.

⁽³⁾ Rocol – Review of Charging Options for London – is a study by Government Office for London to illustrate to Mayoral candidates and their advisers the implications of making use of the new powers for road user charging and workplace parking levies. It is due to report in September 1999.

Roy Turner commented that road user charging and workplace parking levies are uncharted waters and, therefore, it is very difficult to obtain figures on their effects. Changing public awareness will be very important. He also suggested that the clients influenced the study - the boroughs have only sectional interests as, for example, transferring road space to buses. The strategic authority could be more pro-active.

Land use planning will have an effect in the medium to long term - integrated transport aspects give the scope for transferring people as, for example, the demand for private vehicle orbital movement in outer London could be reduced by providing high speed bus services.

Michèle Dix thought that, to be fair, the boroughs and LPAC had taken a strategic view, and the steering group included other agencies such as Highways Agency, Government Office for London and Traffic Director for London.

On public transport improvements, the SWELTRAC⁽⁴⁾ study looked at orbital buses but this indicated only a small transfer from car to public transport. Despite this, improvements have to be made in outer London.

Keith Gardner added the problem in London has been organisational. Question is, will the Mayor use the powers contained in the GLA Bill.

Deborah Peel (UoW) thanked the speaker for such a clear presentation. She added the following points:

- modelling is difficult because there is so much change likely from some of the measures;
- concern about the lack of reference to sustainability;
- was the matrix sub-divided by gender, children, etc?

Michèle Dix said that while the matrix used in current work had not been divided by gender, other work on road pricing had looked at the effects on different groups. Sustainability is implicit in the way this work was undertaken.

Keith Gardner suggested that the strategy being proposed is sustainable and holistic. However, there is concern in East London about regeneration and the

⁽⁴⁾ “South West London Transport Conference” consists of eleven local authorities, London Transport, Railtrack and rail and bus operators. The steering group also includes representatives of passengers (LRPC), business interests (London First) and transport pressure groups (Transport 2000)

need to cater for traffic growth. There is the alternative argument that there is no inward investment because of congestion with more roads not leading to sustainable development.

Don Box suggested that main problem is the structure of costs - the marginal cost of car use is very small or even zero. It will be necessary to make the marginal cost of using a car similar to the cost of using public transport.

In response, Michèle indicated that there are many ways to increase the cost of car use. European studies had indicated that increasing the cost of ownership through vehicle licences had a low impact whereas road user licences have a tenfold effect on marginal cost.

Report by Laurie Baker

Further reading:

David Turner, Michèle Dix, Keith Gardner and Sean Beevers: 'Setting traffic reduction targets for London', *Traffic Engineering and Control*, April 1999, pages 186-194

London Planning Advisory Committee: '*Developing Road Traffic Reduction Targets for London*', report by Halcrow Fox in association with South East Institute of Public Health for LPAC, Cities of London and Westminster, London Boroughs of Camden, Hammersmith & Fulham, and Royal Borough of Kensington & Chelsea. December 1998. £48 from LPAC.

Quality Bus Partnerships

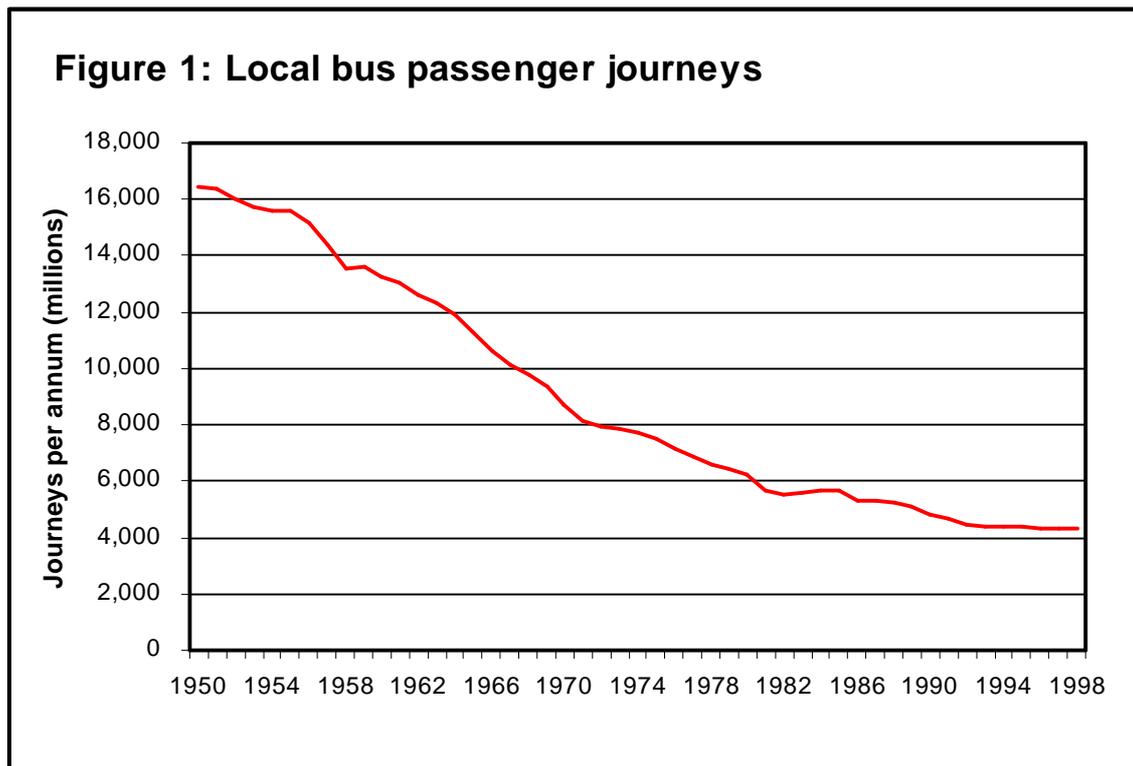
Malcolm Roberts, Director, Colin Buchanan and Partners

A talk given to the Transport Economists' Group

University of Westminster, 24th March 1999

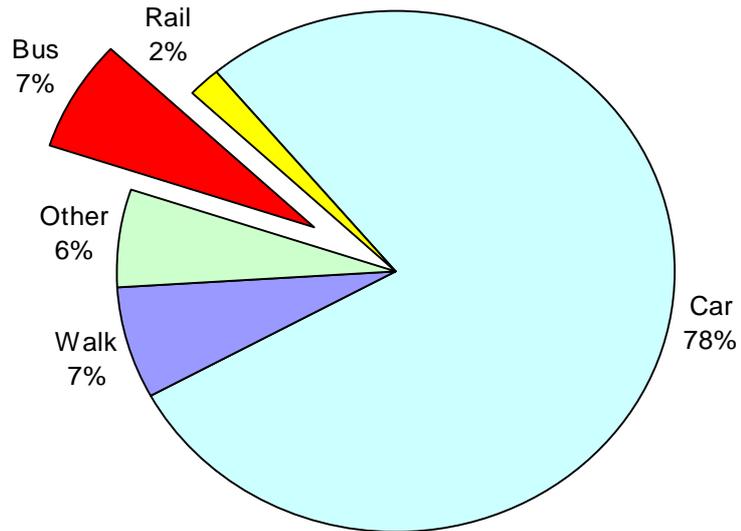
Malcolm began his talk by pointing out that it had been providentially timed for the day after the publication of the DETR's 'daughter document' of the White Paper, entitled "*From Workhorse to Thoroughbred - A better role for bus travel*". He used some of the diagrams in this report to illustrate some background statistics.

- The number of local bus journeys has fallen from over 16 billion per year in 1950 to just over 4 billion in 1998, although the rate of decline has reduced in recent years (see figure 1).



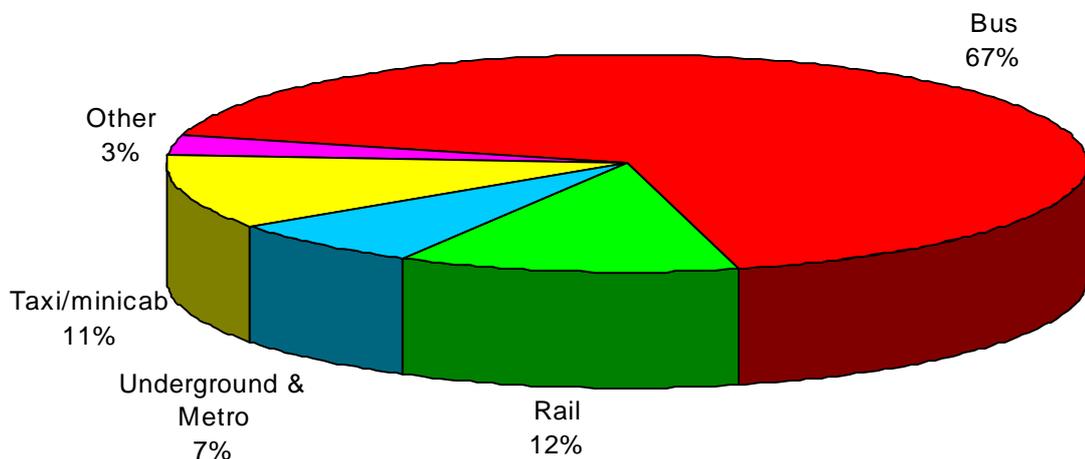
- Bus journeys now account for only 7% of all journeys over 1 mile (see figure 2) with 4 out of 5 journeys being made by car.

**Figure 2: Share of journeys per year
(exc those under 1 mile)**

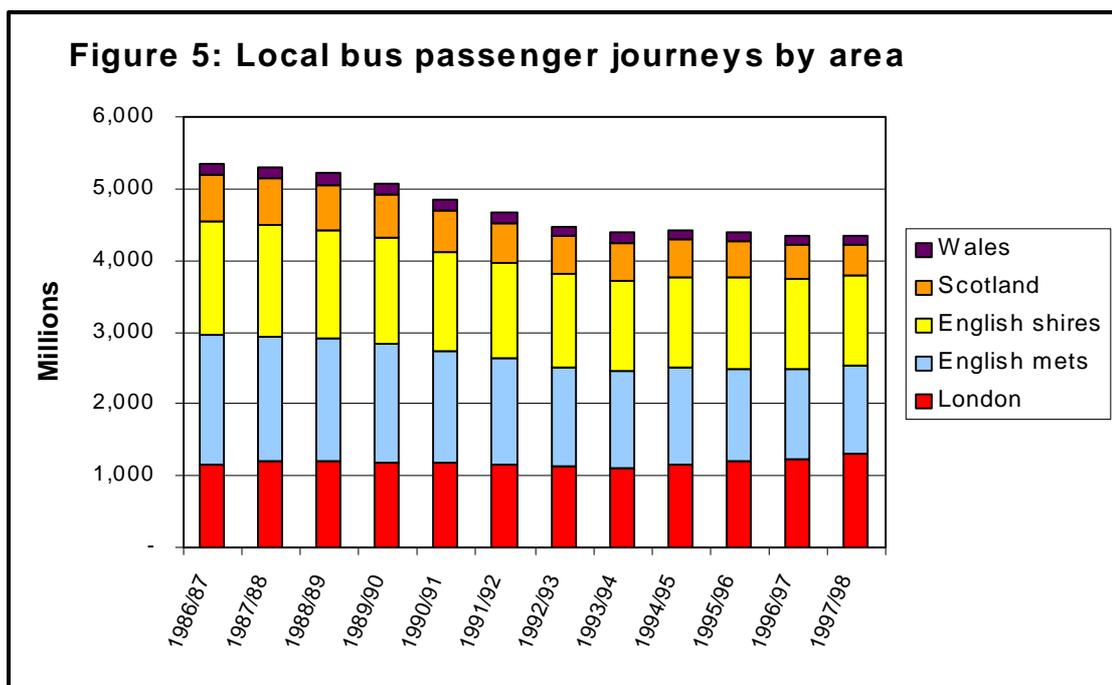
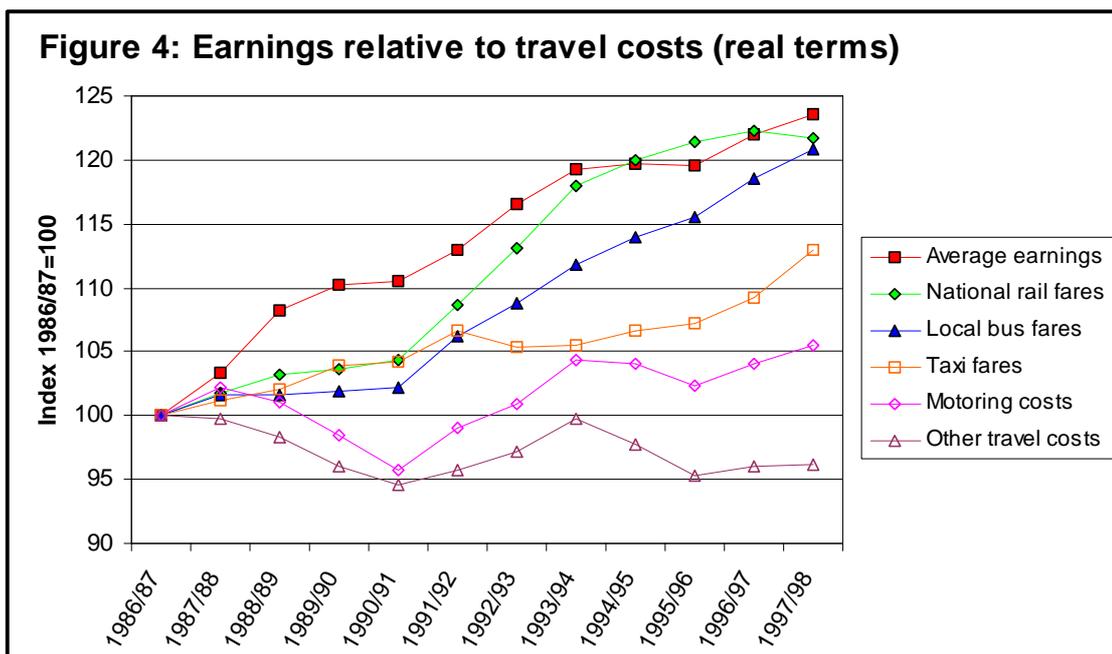


- On the other hand, the bus still accounts for 4.4 billion passenger journeys, representing 67% of all public transport journeys (see figure 3).

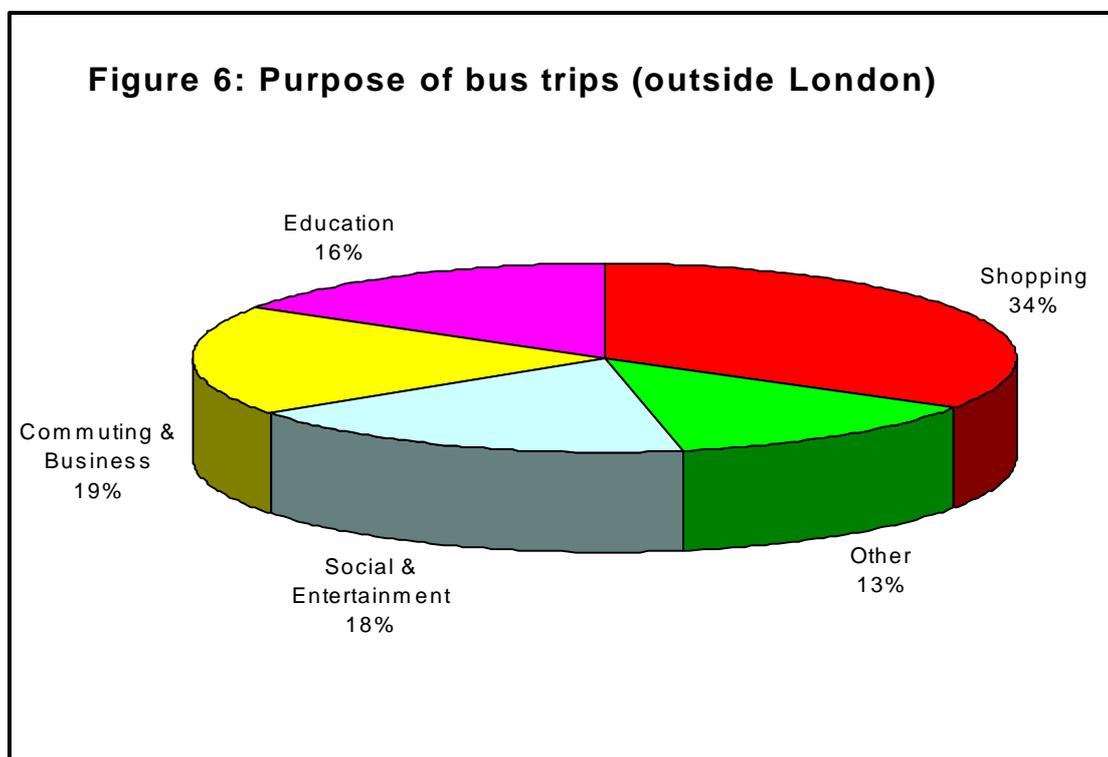
Figure 3: Share of public transport journeys per year



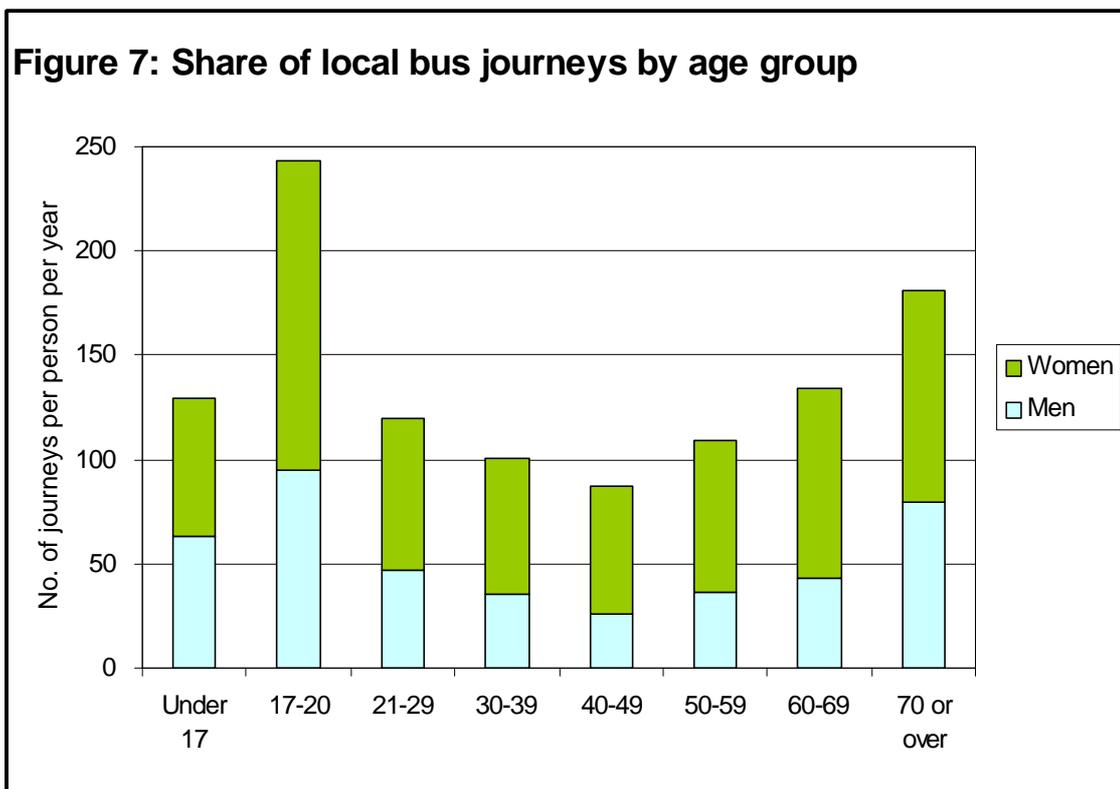
- In the past eleven years both bus and rail fares have risen at about the same rate as average earnings (real increase of 1.8% per year). Compared to this, motoring costs have risen by much less (0.5% per year) with the result that public transport is now relatively more expensive than private car (see figure 4).



- In London there has been a slight increase in the number of journeys by bus, in contrast with the decline elsewhere (see figure 5).
- Only 16% of bus services are subsidised because they are deemed socially necessary, the remaining 84% are commercial.
- 34% of bus trips are for shopping. The remainder are fairly evenly spread between five journey purposes (see figure 6):
 - work
 - shopping
 - education
 - social
 - other



- The biggest users of buses are those aged 17-20. It decreases substantially to the 40-49 age group then rises again. In all age groups, women users outnumber men (see figure 7).



People cite the following reasons for not using buses:

- confusing networks of routes;
- uncertainty about how to pay;
- fears about their personal safety;
- uncomfortable seating;
- difficulty with managing children and/or luggage; and
- unhelpful staff.

Quality Corridors

The response to these problems has been to establish partnerships between local authorities and bus operators, initially in limited geographical areas known as quality corridors. The main responsibilities of each party are:

Local Authority responsibilities

- Bus priority measures;
- Establishing parking regulations;
- Enforcement of regulations;
- Pedestrian access to bus stops;

- Provision of bus stops and shelters;
- Travel information.

Operator responsibilities

- New vehicles, with low floors, low emission engines and comfortable seating;
- Customer care training for staff;
- More frequent services;
- Marketing, including route-specific branding.

Recent examples of infrastructure in quality corridors are:

- A diagrammatic bus map for the Crystal Palace area;
- “Countdown” - indicating the number of minutes before the next bus on a particular route is likely to arrive;
- Talking bus stops in central Edinburgh;
- Extending bus priorities right up to the stop line at a junction;
- The “bus gate” at Shepherds Bush Green, west London; this enables buses making a right turn to avoid a detour of some 0.6km which all other traffic has to make.

The very visible priority given to buses in the last two examples gives the right message to the public that buses are no longer second best.

Value for Money

Research by the TAS Partnership on existing Quality Bus Partnerships has shown which measures give the best value for money in terms of benefits to passengers per pound spent. In decreasing order they are:

1. Simplification of bus routes;
2. Promotion of bus travel;
3. Signing and information;
4. Provision of stops (including naming each one) and of shelters;
5. New buses;
6. Bus priorities;
7. Real time information.

The relatively low position of bus priority and real time information is a reflection of their high cost rather than lack of benefit.

The results of some recent Quality Corridors, in terms of increases in patronage, are shown in Table 1.

Table 1: Effects of Quality Bus Partnerships on Patronage			
Scheme	Total Capital Spend £m	Recorded Increase in Patronage %	Recorded Increase due to Transfer from Car %
Ipswich Superoute 66	2.3	42	
Leeds, Superbus	4	41	11
Liverpool, West Derby Road	3.3	10 (1st year)	
Blackpool, Cleveleys	0.88	20 (1st year)	
Tamworth, Stoneydelph	0.42	5	
Birmingham, Line 33	3.5	30	10

Route 220

London Transport bus route 220 (Willesden-Shepherd's Bush-Hammersmith-Wandsworth) has been the subject of a large number of bus priority measures along much of its length. In common with most London bus routes, the streets concerned are not wide enough to permit more than one bus lane at any one point. Returns from the Wayfarer ticket machines in use on the route show a total increase of some 43% over 3 years. This compares with a growth of bus passengers in London as a whole of only 4% over the same period. Data are not available to indicate how much of the increase on route 220 is caused by transfer from private car.

From Workhorse to Thoroughbred

Malcolm Roberts concluded his talk by summarising the main policy changes proposed in the newly published green paper on buses.

- 1. Possible statutory backing for Quality Partnerships.** Operators not meeting standards could be excluded from the use of any facilities provided by a Local Authority under a Quality Bus Partnership, such as bus stops, bus stations or bus lanes. The Traffic Commissioners would enforce such an exclusion, with an appeal procedure by aggrieved operators to the Director-General of Fair Trading. There is, however, reluctance on the part of Government to introduce such legislation, partly

because of the need for the offending operators' buses to stop somewhere along their route.

2. **Restraint on frequent changes to timetables and routes.** At present over 22,000 changes are made to routes or timetables in a year; only 42 days notice has to be given. One suggestion is that there should be only two change dates per year (i.e. similar to the position on railways). Another suggestion is that changes which make bus departures later should be freely allowed, but changes to make them earlier (and thereby possibly competing with another operator) would be made more difficult.
3. **Integrated ticketing.** The document notes the amount of time wasted by buses at stops because both drivers and passengers have to cope with an inflexible system. It suggests the alternative of imposing ticketing flexibility by means of conditions attached to a quality partnership.
4. **Area-wide Quality Contracts.** These would give a Local Authority much greater control over the planning and operation of bus services, by means of a tendering system, in the same way that apparently works well in London. It is generally felt that outside London the bus user has a raw deal, but the government is reluctant to appear too heavy-handed.

Discussion

Peter Collins (London Transport) challenged the speaker's view that one of the reasons for the growth in bus travel in London is the fact that it is subsidised. In fact this is not the case, apart from the reimbursement of the free fare concession. However the presence of this very generous concession, which is not generally available elsewhere in the UK, helps to increase bus travel. Another reason is that the route tendering system has helped to drive down costs (particularly wages) and has therefore kept fares down.

Peter White (University of Westminster) asked for more details of the traffic engineering measures implemented on route 220 in London. There are in fact several different schemes between Shepherds Bush and Putney Bridge. The great majority are with-flow bus lanes, but there is also a pre-signal at Shepherds Bush.

Stephen Bennett wanted to know what enforcement measures are in place to ensure compliance with bus priorities. The main weapon is on-street CCTV cameras. Elsewhere in London, some buses are fitted with on-board cameras which can record the presence of illegal vehicles in a bus lane.

Ian Souter (independent consultant) wondered why there are no statistics on bus reliability similar to those published for railways, apart from Northern Ireland where bus reliability statistics are published. The speaker pointed out that London Transport do publish Quality of Service Indicators (QSI) which show the excess waiting time for frequent routes, and the likelihood of the bus being late for less frequent routes. Such statistics are not published elsewhere in the UK, but at the conference held on 23rd March, John Prescott indicated that he would like such data published for the rest of Britain.

John Cartledge (London Regional Passengers Committee) taking up this issue said that the LRPC has access to all QSI data and that every London Borough receives quarterly data about the performance of all bus routes in its area. There is wide variation in the amount of interest taken by Boroughs in this information. John then went on to ask about public attitudes towards bus travel. The LEX report on motorists' attitudes to rail and bus travel shows that whereas many of them regard rail as a civilised way to travel, there are a huge number of reasons for not travelling by bus. One likened it to "going back to the Middle Ages". There then followed a general discussion about attitudes to bus travel in different cities, with Oxford, Edinburgh and Aberdeen mentioned as having above average trip rates.

Wyn Jones (Cheshire County Council) pointed out that his county is spending a large amount on bus priorities, but the cost of certain individual bus priority schemes is becoming so high that it may no longer be worthwhile. The discussion was concluded by **Peter Collins** asking the speaker whether he thought that the statutory control of Quality Bus Partnerships is a likely outcome. Malcolm Roberts agreed that it is, but that it will take a long time. He also felt that statutory control will encourage many operators to invest who are currently unwilling to do so because of the danger of "free-riding" by less co-operative operators. Finally, Malcolm said that, irrespective of statutory control of Quality Bus Partnerships, there is a need for more efficient ticketing systems, possibly using Smartcards, in order to make bus travel quicker and more attractive.

Report by Roland Niblett, Colin Buchanan & Partners

TEG NEWS

REPORT OF ANNUAL GENERAL MEETING 24TH MARCH 1999

The Chairman gave an oral report, saying that meetings had been held on a good range of subjects during 1998. Since the last AGM in March 1998 there had been eight meetings on the following subjects:

March 1998	<i>The Cross Channel Market</i> by Roger Vickerman, University of Kent
April 1998	<i>CrossRail – The Way Ahead</i> by David Warren, London Transport Planning
May 1998	<i>Company Car Policy</i> by Sinead Flavin
October 1998	<i>Transport Investment and Regeneration</i> by Martin Shenfield, Berkeley Hanover Consultancy
November 1998	<i>Building the Heathrow Express</i> by Sue Lownds
December 1998	<i>Road Capacity Reduction – Guide to Best Practice</i> by Peter Bonsall, University of Leeds
January 1999	Setting Road Traffic Reduction Targets in London by <i>Michèle Dix, Halcrow Fox</i>
February 1999 (held March 4 th)	<i>How schemes on Red Routes are evaluated</i> by Martin Lawrence, Oscar Faber

The last meeting had been successfully held jointly with the London Branch of the Institution of Civil Engineers, hosted at the Institution. It is proposed to repeat the event next spring, with the Transport Economists' Group acting as hosts.

No seminar has been held since 1995 but it is proposed to hold one next spring on the new appraisal framework with examples from studies. Members will be informed as soon as details have been finalised in the autumn.

REPORT OF THE TREASURER AND MEMBERSHIP SECRETARY

The report for 1998 was circulated along with a summary of the accounts:

1. The result for 1998 is a small surplus - £11, compared with £425 in 1997. Although somewhat disappointing compared with the results of the previous years, there is, as yet, no justification for raising subscription rates. As can be seen from the detail of membership and expenditure, the major causes of the substantial fall in surplus is a falling off of new recruitment in the year, and continued increases in the costs of publications and room hire. It is not envisaged that there will be a similar increase in the current year (1999).
2. The breakdown of expenditure between the main items of administration, publications and meetings, compared with the previous two years is:

	1998	1997	1996
Administration	774	829	757
Publications	967	758	658
Meetings	936	843	735

3. The rise in the cost of meetings (largely due to room hire charges) and of publications (partly due to an increase in the average size of journals) has continued. Postage charges (included in publications, where appropriate) amount to at least £250 a year. We try to co-ordinate 'administrative' postings with those of journals and other publications but it is not always possible to achieve as much co-ordination as we would like.
4. At 31st December 1998 there were 150 members, which is a decrease of eleven over the corresponding figure for 1997. Only three new members enrolled for 1998, which gives 14 lapsed members during the year. It is hoped that the intention to have some pages on the World Wide Web will help boost membership during 1999.

The above report and summary accounts (next page) were adopted by the meeting. It was also agreed that the incoming committee would consider ways of increasing membership.

INCOME AND EXPENDITURE FOR 1998			
Income			
Subscriptions		2,566	
Interest		143	
Other		2	2,711
Expenditure			
Administration	Secretary	756	
	Other	18	774
Publications			967
Meetings	Room hire	645	
	Entertainment & expenses	166	
	Insurance	125	936
Corporation Tax			23
			2,700
Excess of income over expenditure for the year			11
BALANCE SHEET			
Accumulated funds at 31.12.98		3,540	
Plus surplus for 1998		11	3,551
Creditors			1,241
			4,792
Represented by:			
Deposit account		2,331	
Current account		2,523	4,854
Less uncleared cheques			62
			4,792

REPORT OF THE AUDITOR

To members of the Transport Economists' Group: I have examined the books and records of the Transport Economists' Group and have received explanations from your Treasurer as necessary. In my opinion the Balance Sheet gives a true and fair view of affairs at 31 December 1998, and the Income and Expenditure Account properly reflects the excess of income over expenditure for the year ended.

Signed: J C Bentley, F.C.C.A

The meeting elected the COMMITTEE for 1999 as follows:

CHAIRMAN: Peter White

VICE CHAIRMAN AND SECRETARY: Peter Collins

TREASURER AND MEMBERSHIP SECRETARY: Don Box

PUBLICATIONS EDITOR: Laurie Baker

PROGRAMME CO-ORDINATOR: Stephen Bennett

PUBLICITY OFFICER: Martin Lawrence

COMMITTEE MEMBER: Roland Niblett

MEETINGS 1999/2000

Meetings will be held at 5.30 for 6pm in room 205 of the Transport Studies Group at the University of Westminster, located at 35 Marylebone Road, London NW1 5LS. The building is on the south side of Marylebone Road, close to Baker Street Underground Station and is passed by numerous buses. The first meeting has been arranged in October:

October 27 **Rail Regulation – a review of the first years**
Chris Bolt, former Rail Regulator

A full programme is being arranged up to June 2000 on the following dates:

November 24th
December 15th
January 26th
February 23rd
March 22nd
April 26th
May 24th
June 22nd

Members will be informed on the topics in good time.