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London Bus Priority: the story so far…

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Introduction

This paper reports on the progress that has been made in implementing bus priority in London with particular reference to the London Bus Initiative Phase 1 (LBI1) Programme. The paper is structured as follows:

- Background;
- Outputs;
- Outcomes; and
- Programme Economic Evaluation

Further information about the LBI1 Programme and its assessment can be found in *Reference 1.* The Programme was described in a paper given to the Transport Economists' Group, by Zyg Kowalczyk the then-LBI Programme Director, in January 2001 – see *Reference 2.*

Background

LBI1 was initiated in spring 2000 and was funded by a £60M grant from central government. The vision was:

"to deliver a step change enhancement of the actual and perceived quality of London's bus service" (reference 3).

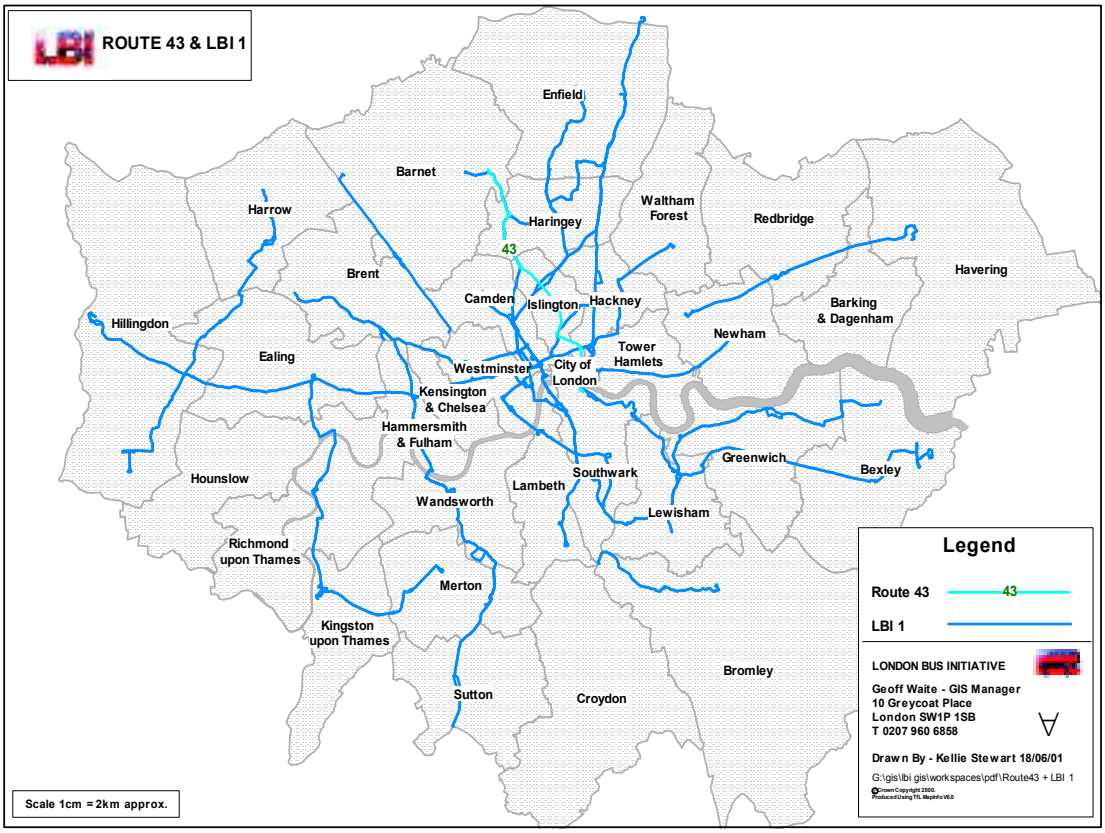
This vision, in turn, was expressed as the following four objectives, namely, to increase the:

1) ridership of buses;
2) attractiveness of buses, and to
3) implement the improvements on a, "Whole Route" basis and to further
4) make buses the first choice mode

As will be described below the Programme essentially comprises of the provision of bus lanes and bus priority at traffic signals, supported by complementary measures such as the increased enforcement of bus lane regulations.

Figure 1 shows the network of 27 LBI1 routes, together with the Route 43, which was used to demonstrate the way in which such extensive whole route bus priority measures could be implemented before the Programme was initiated.

Figure 1: LBI1 Routes and Route 43 Demonstration



The LBI1 network has the following characteristics, since it:

- carries over 1.6 million (M) passenger journeys per take day;
- operates on roads controlled by 34 highway and traffic authorities (i.e. the 33 London Local Authorities and Transport for London(TfL); and
- 16 bus operators provide bus services on the routes;

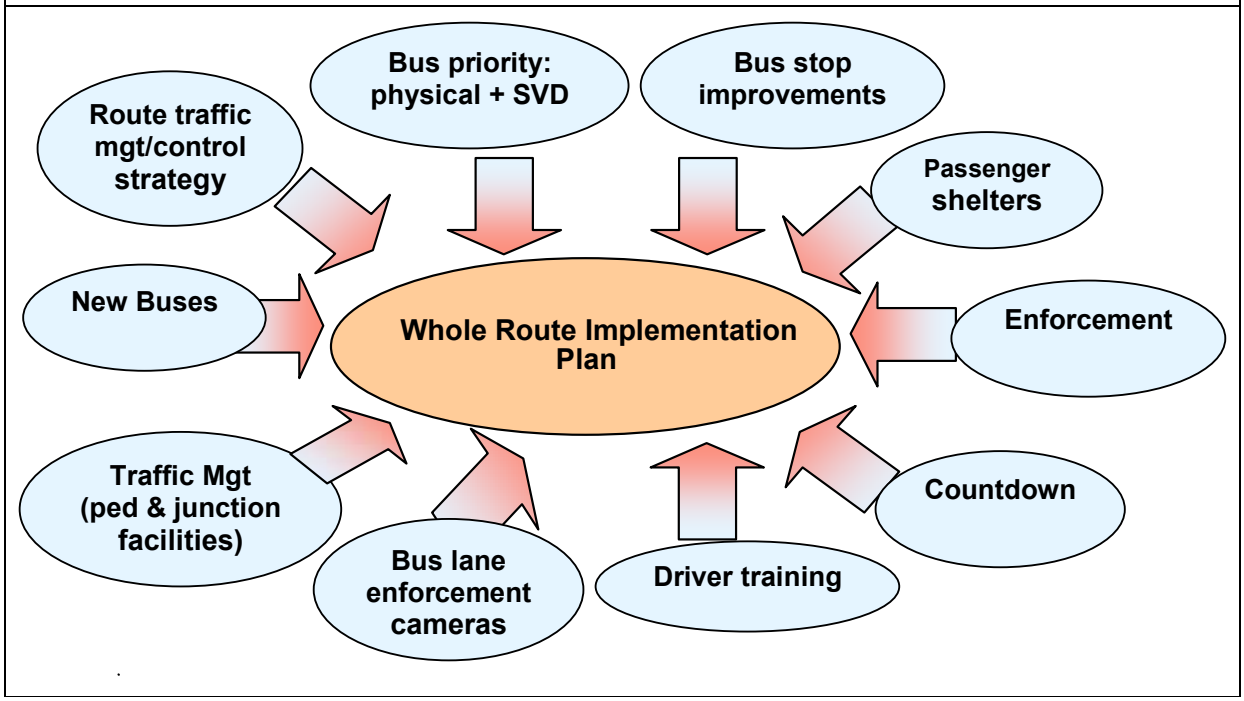
The 27 routes were grouped in to three different categories:

- Quality Whole Route Plus (QWR+; three routes);
- Quality Whole Route (QWR – five routes), and;
- Whole Routes (WR - 19 routes)

Each route category was given a different level of improvement, under the Programme, with the QWR+ allocated the highest level and the WR the lowest (Reference 3).

A Whole Route Implementation Plan (WRIP) was prepared for each route, which described the various measures that would be put in place. The provision of these measures required co-operation between a number of different organisations as is illustrated by Figure 2. For example, the bus operator provided the new buses, while both the local authorities and TfL provided increased enforcement.

Figure 2: LBI1 Partnership



Outputs

Bus-Movement-related Outputs

Outputs are, essentially, the actual measures and facilities that were put in place as part of the Programme. In order to achieve the objective of, for example, encouraging greater bus ridership various measures were implemented. Two outputs that affected bus passengers, when they were in the bus, were:

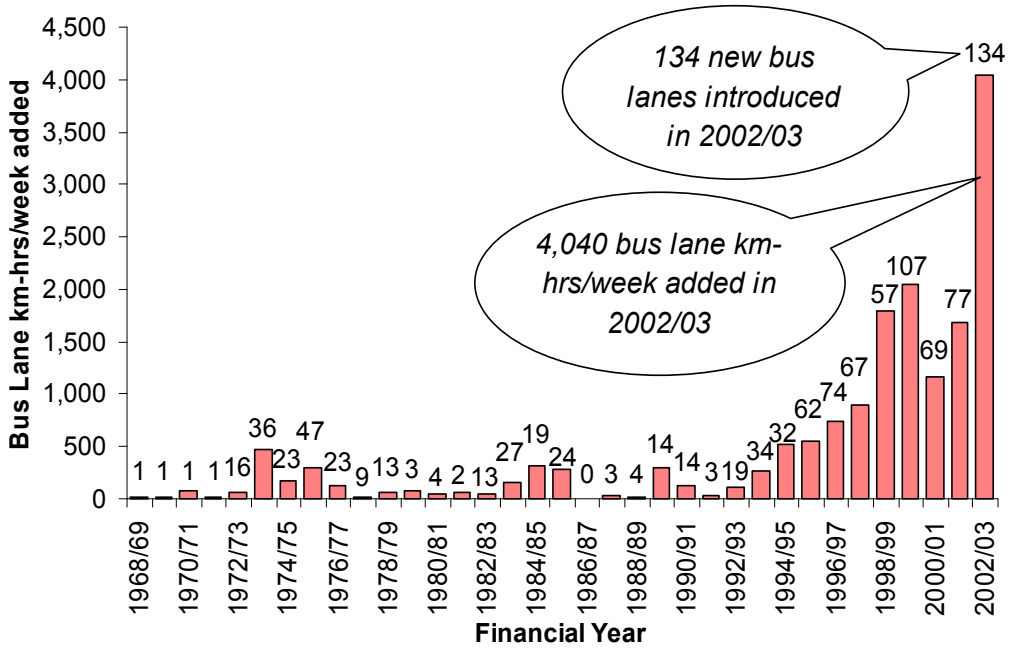
Bus lanes, and

Bus priority at traffic signals

Bus lanes have two, "dimensions" namely their length and hours of operation. A bus lane could be improved to give greater bus priority by either being lengthened and/or by having its hours of operation extended. The, "bus lane

kilometre-hours-per-week" index expresses the priority afforded by bus lanes. Figure 3 shows the additional bus lanes that have been provided in each of the financial years and also shows how the index has increased (in each financial year). It can be seen that the largest increase in the number of bus lanes provided (134) and in the index (4040 bus lane Kilometre-hours-per-week) occurred in 2002/3. This is a direct result of the implementation of the LBI1 Programme.

Figure 3: Bus Lane Programme Outputs



Bus lane km-hours/week added each year to London's bus lanes (bars) and number of new and modified bus lanes (numbers)

Figure 4 illustrates the way in which Selective Vehicle Detection (SVD) provides bus priority at traffic signals.

Figure 4: Bus priority at signals – selective vehicle detection (SVD)

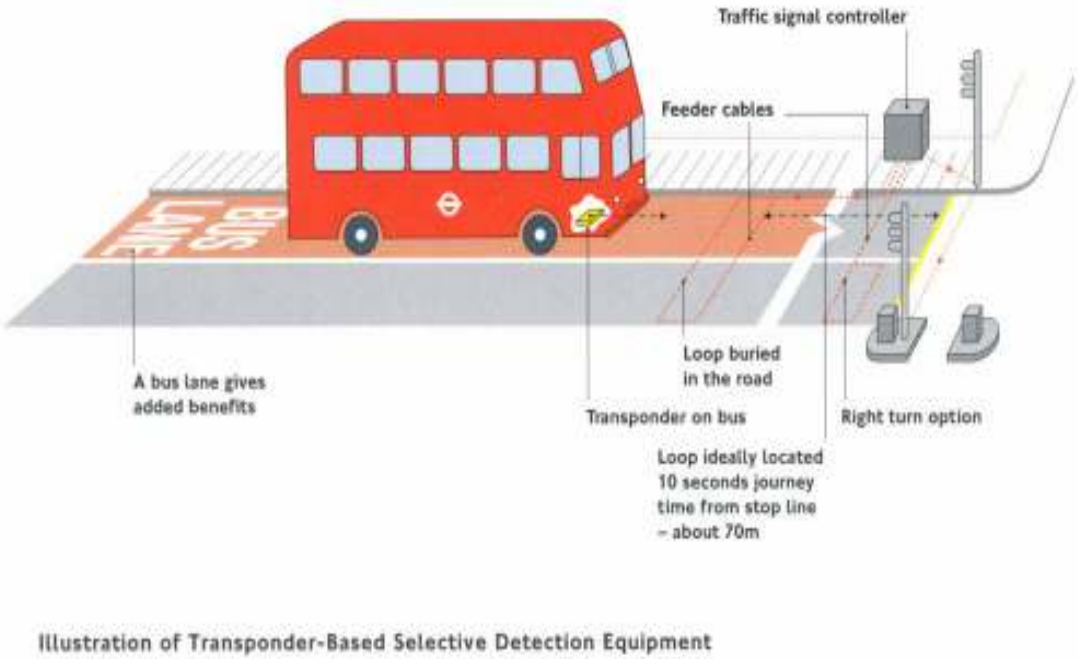


Illustration of Transponder-Based Selective Detection Equipment

The traffic signal controller is able to detect the bus using beacons installed on footways on its approach to the signals and then extend the traffic signal stage (i.e. show a green light for longer) to the junction arm on which the bus is approaching.

Table 1 summarises the LBI1 Programme bus lane and SVD outputs.

Table 1: LBI1 Bus-movement-related Programme Outputs

Bus Priority	***Number***
Bus Lanes	
New	Over 100
Improved (i.e. either length or hours of operation increased)	Over 100
Bus Priority at Junctions	
SVD	Over 300

Bus passenger (as pedestrians) movement related outputs

The Programme also implemented a number of schemes that assisted bus passengers to reach the bus stop. Table 2 summarises these pedestrian-related outputs.

Table 2 : LBI1 Bus passenger (as pedestrian)-related outputs

Facility	*Number*
"Pelican" crossings	50
"Green man" pedestrian facilities at signalised junctions	50

"Soft" Outputs

"Soft" outputs are defined as those, which may not have had a direct effect on bus journey time but nonetheless would be expected to have had a positive impact on the experience of LBI1 bus passengers. Soft outputs are concerned with improvements to passenger information, passenger accessibility and operational improvements.

Table 3 shows the improvements that have been made to the provision of passenger information.

Table 3 : LBI1 Passenger Information Outputs

Facility	*Number of bus stops*
Countdown	981
"Spider Maps"	Over 300

Countdown is London Buses' real time passenger information at bus stop system. An illuminated panel counts down the number of minutes until the arrival of the next bus on a specific route.

Spider maps show the bus stop as the spider at the centre of web of routes extending from the bus stop. They enable the passenger to plan his, or her, onward journey from the stop in a straightforward way.

Table 4 shows the improvements that have been made to passenger accessibility.

Table 4 : LBI1 Passenger accessibility outputs		
Facility	***Number***	***Percentage of LBI1 bus stops (%)***
Fully accessible bus stops	1000	40
Bus stops with shelters	1800	72

Of the 2500 bus stops on the LBI1 network, 1000 are now "fully accessible". This means that the bus stop has the necessary kerbside geometry for the bus to be able to successfully deploy its wheel chair ramp.

Table 5 outlines the operational improvements that have been achieved.

Table 5 : LBI1 operational outputs		
Bus type	***Number of routes***	***Percentage of LBI1 routes (%)***
Accessible low floor buses	25	93

Of the 27 LBI1 routes, in October 2003, 25 are operating fully accessible low-floor buses. The passenger journey experience was also enhanced through the establishment of a Business and Technical Engineering Council (BTEC) training course for bus drivers. This emphasised the importance of stopping at the bus stop, "flag", for example. Quality Incentive Contracts for bus cleaning were introduced as well. These mean that bus cleaning contractors can achieve financial bonuses when they prepare very clean buses and face penalties when buses do not reach a sufficient standard of cleanliness.

Table 6 illustrates the changes that have been made to the enforcement of bus lane regulations.

Table 6 : LBI1 enforcement outputs	
Measure	***Number or percentage***
Service Level Agreements (SLAs) implemented	30
Additional Parking Attendants	92
Additional, "Borough" CCTV cameras	Over 200
Proportion of buses with bus-mounted cameras	17%

Enforcement of bus lane regulations in London is complicated because there are a number of different traffic authorities that are, broadly, responsible for the enforcement of the regulations on roads over which they have jurisdiction. For example, a London Borough is responsible for the enforcement of the bus lane regulations on a road (known as a, "Borough Road") for which it is the traffic authority, while TfL is responsible for the enforcement of these regulations on the Transport for London Road Network (TLRN). TfL is the traffic authority for the TLRN. LBI1 routes traverse both Borough Roads and the TLRN. The term London Local Authorities (LLA) is used to describe the London Boroughs and the Cities of London and Westminster who have jurisdiction over Borough Roads.

Service Level Agreements (SLAs) have been signed between TfL and 30 LLA (who very largely comprise the London Boroughs) to specify the number of Parking Attendants who patrol a bus route that runs along a Borough Road. The SLAs have resulted in the additional 92 Parking Attendants, who enforce regulations on Borough Roads, being deployed. Modern technology has also been used to enforce bus lane regulations and TfL has funded 200 new, "Borough" CCTV cameras and bus-mounted cameras.

On-bus cameras are now mounted on 17% of the LBI1 bus fleet. Twelve LLA have signed Joint Agreement Documents (Jades) with TfL. These allow for TfL bus mounted cameras to be used to enforce those regulations that apply on the Borough Roads along which certain LBI1 routes operate.

Bus lanes are required to have signs and road markings to a certain standard if they are to be successfully enforced both by cameras. In October 2003 it was estimated that 75% bus lanes, on the TLRN, and 52% of bus lanes on Borough Roads were, "signed and lined" to an enforceable standard.

It can be seen, therefore, that the more vigorous enforcement of bus lane regulations has required both the application of modern technology and cooperation between the various organisations involved.

Outcomes

The measurable Outcomes that were generated by the Programme outputs are briefly described below. Outcomes are measures of results in respect of bus performance (speed and reliability) and passenger perceptions and levels of use.

Certain Outcomes can be attributed to the Output in question; for example, the bus lanes and bus priority at signal schemes described below would be expected to have generated the identified Outcomes. However, other Outcomes, such as the improvement in reliability, as indicated by changes in Excess Waiting Time (EWT), have almost certainly been influenced by other factors such as the implementation of Congestion Charging in central London. Therefore, when considering the Adherence to Schedule, Reliability and Patronage Outcomes,

described below, it should be borne in mind that such factors other than the Programme measures will have contributed to their achievement.

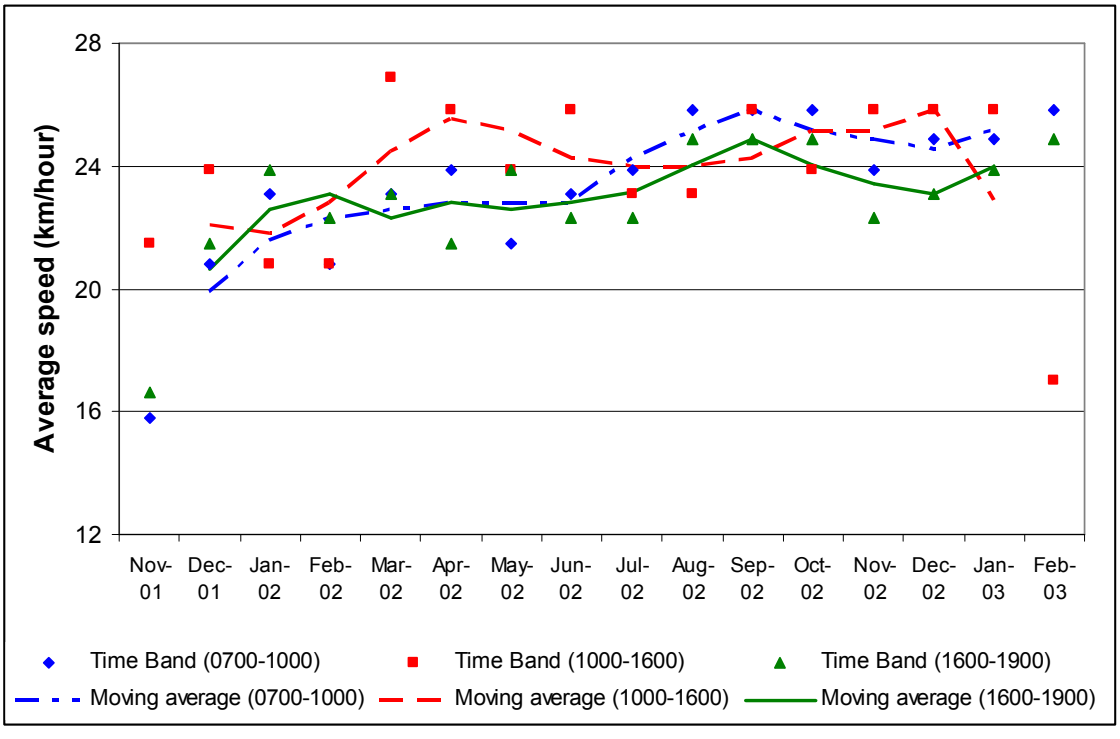
While the influence of such factors is acknowledged, this estimate of the Programme impact did not attempt to identify the extent to which they contributed to the achievement of the Adherence to Schedule, Reliability and Patronage Outcomes. Despite the difficulties of identifying the extent to which these factors contributed to the achievement certain Outcomes, this estimate of Programme impact sought to contrast LBI routes with other London bus routes in order to isolate the differences caused by the Programme. (This approach is outlined in the, "Programme Economic Evaluation" section below).

Bus lanes

As discussed above, many bus lanes were implemented as part of the Programme. Here the outcomes achieved at one site are described as an example. Figure 5 shows the change in Bus Journey Speed that has occurred on a carriageway section where a bus lane has been provided. (Bus Journey Speed is the speed that is calculated from the total time for the bus journey along a carriageway section and includes bus stop dwell time).

Figure 5: Bus priority outcomes - change in speed

Church Road (A312) southbound bus lane, introduced 7th June 2002



The speed data shown on Figure 5 has been obtained from the Automatic Vehicle Location (AVL)/Marquis system which, among other things, provides the bus location information for the Countdown indicators. Speeds for the Route 140 are shown.

This with-flow bus lane is:

- On Church Road in North west London;
- 720 metres long, and
- Operates in the AM and PM peak periods (i.e. 0700-1000 and 1600-1900)

Figure 5 shows that Bus Journey Speeds during the hours of bus lane operation have increased following bus lane implementation, in June 2002. Comparing February 2002 (Before the bus lane) speeds with February 2003 (After the bus lane) speeds, shows that Bus Journey Speeds have increased by 19% in the AM peak period and 10% in the PM peak period.

Appraisals carried out for other bus lanes, which had been implemented as part of the programme showed that the First Year Rate of Return (FYRR) was approximately 20%.

Bus Priority at Signals

Table 7 summarises the time savings that can be achieved through the provision of bus priority (i.e. SVD) at traffic signals.

Table 7: Impact of Bus Priority at Signals

Type of Signalised Junction Control	*Time savings (seconds) per bus per junction*
Isolated :Vehicle Actuated	6-9
Network : Computer linked : BUSSCOOT	5

The time saving depends on the Method of Control (MOC) of junction. If the junction is isolated and when a bus is detected the appropriate traffic signal stage is extended (within a fixed set of timing plans) a saving of six to nine seconds per bus can be achieved.

When the junctions are more closely spaced and are computer-linked, the BUSSCOOT programme (for example) can be used to detect buses and to coordinate the operation of the signals so that buses are given priority. Under this MOC a saving of five seconds per junction can be achieved.

Route 32 provides an example of the magnitude of the time savings that can be achieved when a series of junctions along a route are treated. Here priority at 15

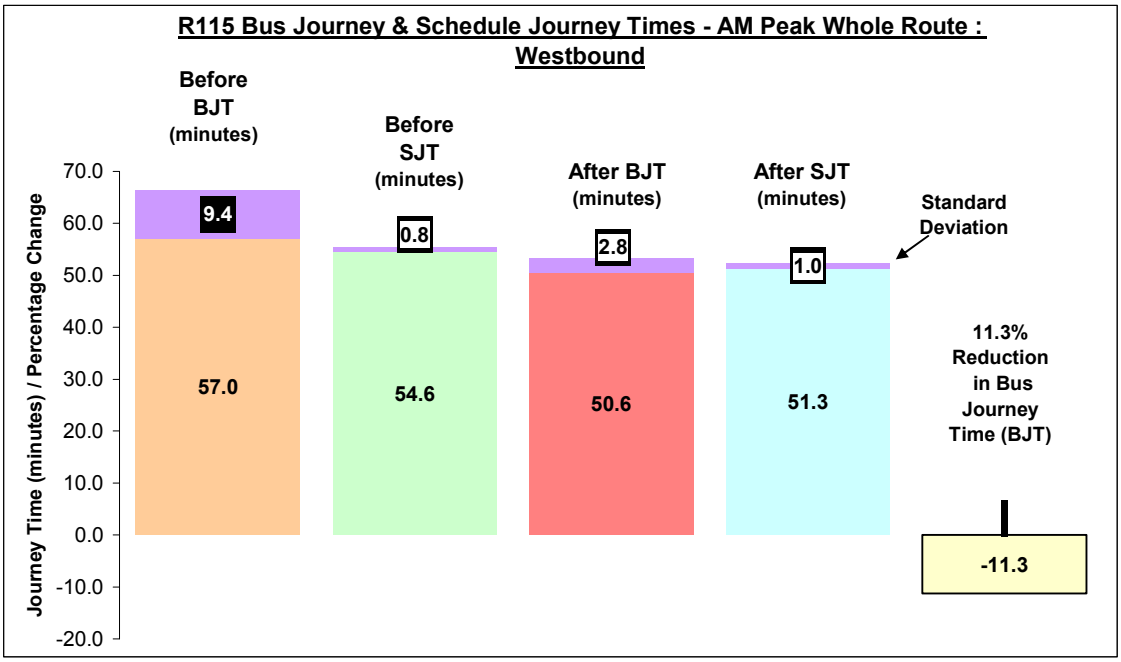
junctions produced a time saving of nearly two minutes on the route end-to-end journey time.

Appraisals carried out for SVD schemes, which had been implemented as part of the programme showed that the First Year Rate of Return (FYRR) could be as high as 70%. This high rate of return was achieved because the cost of scheme implementation was relatively low and the value of the benefits high.

Adherence to Schedule

Figure 6 shows how the provision of the Programme bus priority measures improved the ability of the Route 115 to adhere to Schedule. The Route 115 runs from East Ham, in the London Borough of Newham, to Aldgate, in the City of London. Figure 6 shows how actual (and scheduled) bus journey times changed for the westbound journey in the AM peak, which is the with-peak-flow direction. The Before surveys, on which these journey times are based, were carried out in spring 2000 and the After surveys were carried out in spring 2003.

Figure 6: Bus priority outcomes - adherence to the schedule



In Figure 6, the actual (and scheduled) bus journey time is shown, in minutes, within the block, while the variability of these journey times is indicated by the standard deviation (of the journey time in question) at the top of the block. The darker blocks represent actual bus journey time, while the lighter blocks show scheduled bus journey time. (Note that although the average and variability of

journey times have been shown stacked altogether (in Figure 6), they are two different types of descriptor of bus service operation).

Inspection of Figure 6 reveals that in spring 2000 (Before), actual bus journey time was considerably greater than scheduled bus journey time at 57.0 minutes compared with 54.6 minutes. However, in spring 2003 (After) actual bus journey time was very close to scheduled bus journey time at 50.6 minutes in comparison with 51.3 minutes. Therefore, the measures had assisted in enabling buses to run to schedule, whereas before their implementation actual bus journey time was greater than scheduled bus journey time.

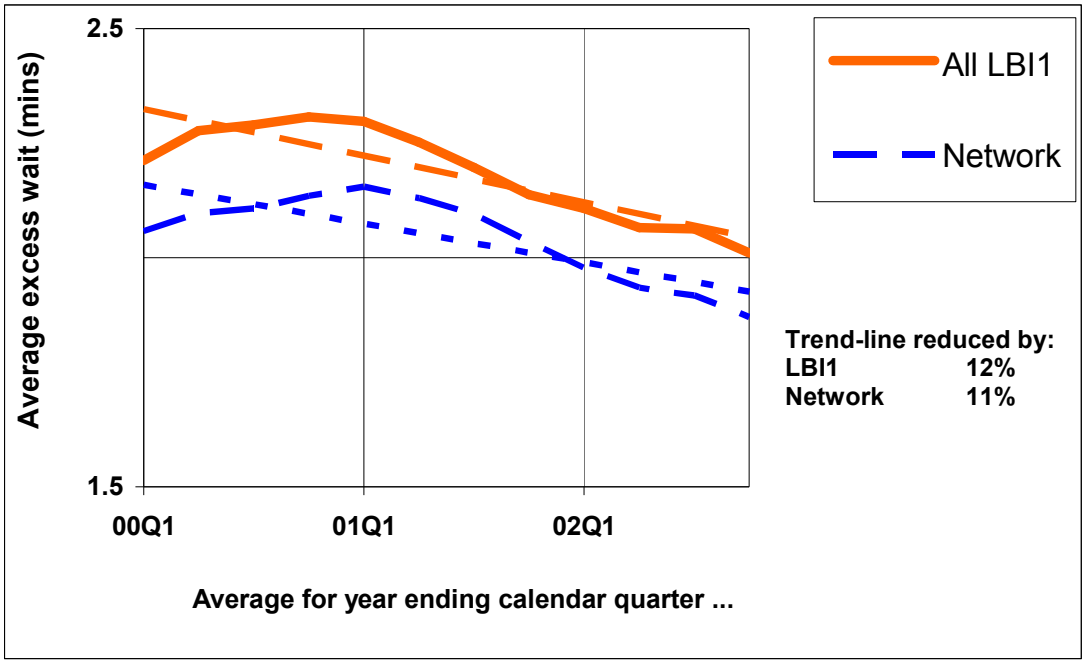
If the variability of actual bus journey times is considered, it can be seen that this variability has reduced. The Before actual bus journey time standard deviation was 9.4 minutes, while the comparable After statistic was 2.8 minutes. This indicates that bus journey times became more reliable following the implementation of the measures.

Reliability

Excess Waiting Time (EWT) is used to indicate changes in bus reliability as perceived by bus passengers. It is defined as the difference between a passenger's scheduled and actual waiting time at the bus stop and is calculated by comparing surveyors' observations with the schedule. The lower the value of EWT, the more reliable the service is in terms of waiting passengers' experience of adherence to schedule.

Figure 7 illustrates the way in which EWT changed between 2000 and 2002, for the LBI1 network of routes and for all the routes operated on behalf of London Buses. Comparison of the trend lines shows EWT on the LBI1 routes fell at a slightly greater rate (12%) than it did on the remainder on the London Bus network (11%). This suggests that the Outputs that would be expected to affect EWT, such as the provision of bus lanes and SVD, on the LBI1 network have resulted in reliability improving at slightly greater rate, on this network than it has done on the remainder of the London Bus network.

Figure 7: Bus priority outcomes - reliability



Excess Waiting Time: LBI1 compared to whole LB network

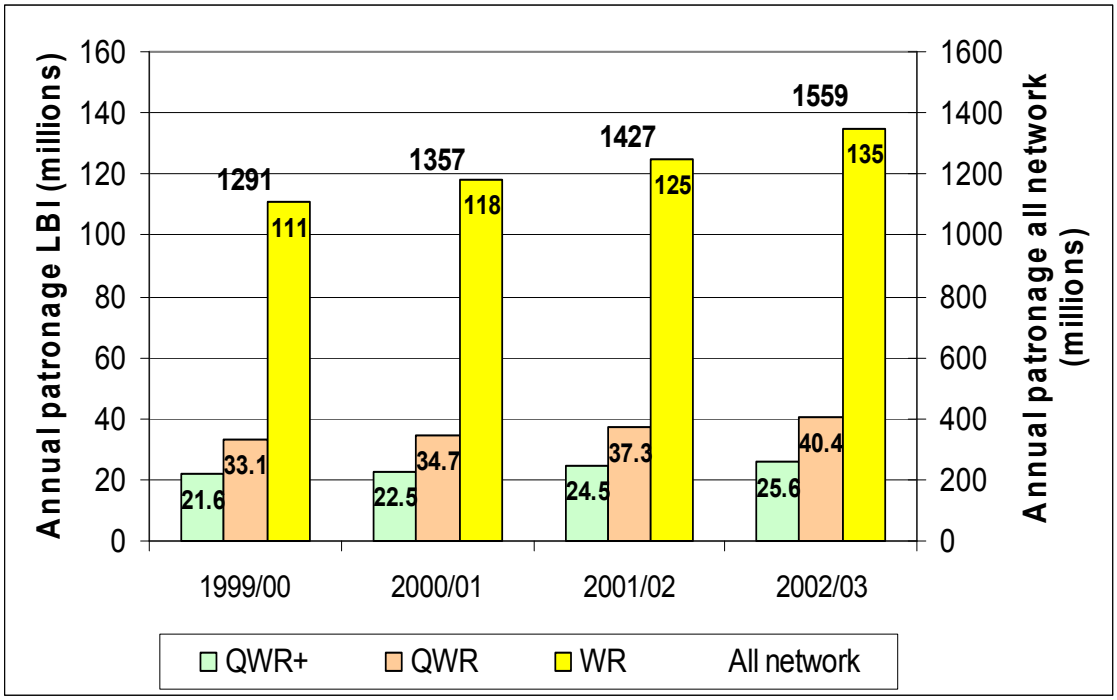
Patronage

Figure 8 shows the growth in patronage for the LBI1 network of routes and for the remaining London Bus network. The LBI1 network patronage is presented according to route category i.e. by QWR+, QWR and WR. The left-hand scale indicates the annual number of passengers carried by the LBI1 network, ranging from 0 to 160m. The right-hand scale shows the equivalent number of passengers carried by the remainder of the London Bus network.

LBI1 network patronage has increased from 165m per annum (in 1999/00) to 201m per annum (in 2002/3), i.e. 21.9%. Patronage on the remainder of the London Bus network has increased, over the same time period, from 1,291m per annum to 1,559m per annum, i.e. 20.8 %. LBI1 network patronage has therefore increased at a slightly higher rate (about 1%) than the remainder of the London Bus network.

These measurable Outcomes as achieved by bus lanes and bus priority at signals and as indicated by improved adherence to schedule, reliability (as measured by EWT) and increased patronage, all indicate the ways in which the Programme has achieved its objectives, such as, increasing bus ridership, for example.

Figure 8: LBI1 outcomes – patronage

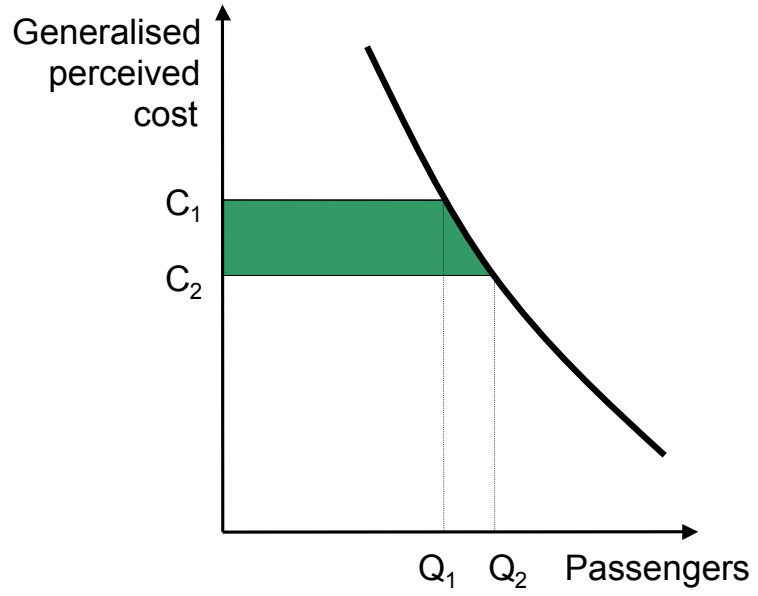


Programme Economic Evaluation

An economic evaluation of the Programme was carried out based on the relative change in patronage between the LBI1 network and the remainder of the London Bus network. (The method used is only outlined here, a full explanation can be found in Appendix 1 of *Reference 1*).

Figure 9 illustrates a demand curve, which shows how passenger numbers increase as generalised cost reduces.

Figure 9: Economic benefits



On the LBI1 network the generalised cost of bus use has reduced (from C_1 to C_2) because of the implementation of the various measures (that have improved reliability, information and cleanliness, for example) and as a consequence passenger numbers have increased from Q_1 to Q_2. The shaded area represents the change in the LBI1 network passengers' consumers' surplus. While the Programme has been implemented, fares on the LBI1 network have remained the same as fares on the remainder of the London Bus network. However, the LBI1 network has enjoyed a greater increase in patronage than the remainder of the London Bus network. Estimates of the fare elasticity of demand for bus travel are available. This elasticity can be used to estimate the reduction in fare that would have brought about the differential increase in patronage that has occurred on the LBI1 network. Hence the size of the shaded area in Figure 9 (the change in the LBI1 network passengers' consumers' surplus) can be calculated.

In summary, the generalised cost change that generated the additional demand is equivalent to a fare change. Demand elasticity has been used to impute this equivalent fare change and hence derive the Programme benefits.

An estimate was also made of the benefit to non-LBI1 bus passengers (such as passengers on other routes who use LBI1 infrastructure) and included in the estimated total Programme economic benefit.

Applying this method estimates the benefits to bus passengers at £12m per annum. This indicates that the Programme would recoup its costs (of £60m) in five years through the bus passenger benefits that it generated.

The benefit of £12m represents the value that bus passengers would place on the improvements that they now enjoy, such as reduced in-vehicle time, for example.

Conclusion

Some lessons learnt

Certain competing policies have required a balance to be struck between the needs of bus passengers (when travelling in the bus) and the needs of pedestrians (who could be bus passengers walking to/from the bus stop). For example, on the Route 149 (which is a QWR+) the provision of, "all green" traffic signal stages during which vehicles are halted while pedestrians receive a green man aspect, have made it easier for bus passengers to access bus stops but may have also delayed buses while vehicles are held. (Any delay to buses can be ameliorated if a bus lane is provided which enables the bus to move away on the next available green stage).

It has been estimated that about 40% of all (i.e. TLRN and Borough Road) bus lanes require improved signing, lining or Traffic Regulation Orders to bring them up to an enforceable standard. Spending to achieve this standard for all bus lanes would represent further revenue expenditure, but might be expected to further increase bus speeds as enforcement becomes more vigorous.

Achievement of Objectives

In terms of the achievement of the objectives set out above, the following comments can be made.

1) Increase the ridership of buses – an additional 36m passengers per annum were using the LBI1 network in 2002/3 in comparison with 1999/00;
2) Increase the attractiveness of buses – as illustrated above the LBI1 network is more reliable, in terms of EWT and the increased number of passengers are enjoying vastly improved buses and bus stop infrastructure;
3) Implement the improvements on a, "Whole Route" basis – 1000 schemes have been provided on this basis across the 27 routes., and
4) Make buses the first choice mode

The above would indicate that the first three objectives have been achieved, while it more difficult to determine whether LBI1 bus routes bus have, in fact,

become the first choice mode (for a certain length or purpose of trip, for instance) within the corridors they serve.

The achievement of objectives 1) and 2) is borne out by the outcomes that have been described above such as reduced bus journey times that can be attributed to bus lanes (and SVD) and the improvement in adherence to schedule over the whole route.

As described above, the economic benefit of the Programme has been estimated as £12m per annum, a return of 20% per annum. The financial rate of return, based on increased fare income, has been estimated at 4% per annum.

Way Forward

Transport for London is now developing the bus priority programme up to 2011, which builds upon the project management structure, which was set up as part of the LBI1 Programme.

This includes the following:

- The implementation of similar bus priority measures on a further 43 routes as part of the London Bus Initiative Phase 2 (LBI2).
- The identification and amelioration of hotspots (where buses are prone to delay on the TRLN and the London Bus Priority Network); and
- The implementation of the Intensified Bus Priority (IBP) and Enforcement Pilot Schemes.

Discussion

Peter White *(University of Westminster) found the data on reduced variability on route 115 journey times interesting and wondered what value of time was assumed in the first year rate of return calculation, and whether it included elements of work time.* Scott indicated that the value used was around £6.16/hour, broadly the same as Department for Transport assumptions. He also indicated the typical passenger numbers on a bus: 12 nationally, 14 in London, 22 in London's inbound peak and full in some cases. (Post Meeting Note: In its analysis TfL assumes 98.5% of bus passengers are travelling in non-working time).

Martin Brazil *asked whether the first year rate of return took into account the capital costs of new roads (such as the A312) whose capacity had been converted to a bus lane.* Scott stated that the road had already been there in the base case and they had compared the incremental benefits of the bus schemes with their incremental costs.

John Cartledge *(London Transport Users Committee) favoured LBI but noted that excess waiting time on the LBI1 network had not fallen much faster than in London as whole, and pointed out that a number of other factors were also in*

play. Scott noted that this was a fair point: the benefits were fragile and could easily be reduced by poor compliance or enforcement. However, improved pedestrian crossing facilities were taking back some of the time savings to buses in favour of pedestrians. *John also asked whether some Boroughs were not supportive of LBI.* Scott confirmed that, as would be expected, some Boroughs, or some wards, or some local groups, had objections to bus priority and this inevitably affected the local politics of implementing and sustaining them.

Robert Cochrane *asked if any work had been done on the relative benefits to bus users and disbenefits to other road users, particularly where parking and loading became more restricted.* Scott was not aware of any studies in this area. *Robert also suggested that "micro" analysis might be useful at individual sites performing badly. He observed that on the Montpelier Vale bus lane in Blackheath it was hard to identify the operating hours and there appeared to be no culture of e compliance or enforcement, and wondered if it was in the wrong place.* Martin mentioned the Transport Operations Command Unit (TOCU) initiative whereby the Command Unit would drive around and "keep an eye" on how schemes were performing, but this also had its costs. Scott mentioned that the Bus Priority Team had around 60 staff, some of whom effectively had to cover 2 or 3 Boroughs.

Stephen Burke *(London Borough of Bexley) asked about the calculated time saving benefits.* Scott confirmed that it excludes delays to other road users but that in many cases even minor associated road improvements (such as moving a kerb back 0.5 metres and gaining a full second lane) would also generate additional benefits to other users. *Stephen also wondered what data was collected on increases in patronage and revenue as well as just savings in journey time.* Scott acknowledged that such increases would represent unquantified benefits, but the only regular surveys of patronage were the 5-yearly Bus OD Surveys (BODS). Revenue estimates would be complicated by the fact that 80% of passengers have Travelcards and free travel at the margin. John Cartledge thought that Revenue Protection staff would have regular counts of passenger numbers, and added that one effect of the single bus fare was that at least now there could be no lost revenue through overriding.

Dick Dunmore *(Steer Davies Gleave) commented on compliance and enforcement. He thought that road users may think bus lanes remove half a road's link capacity whereas their role is to give buses priority at the actual constraint, junctions. Like Robert Cochrane, he found the varied times of bus lane operation difficult to digest, as they require a driver to monitor numerous plates signing times of operation, and wondered whether 24-hour lanes would be simpler. He also asked whether "pre-signals" giving buses priority access to a main junction were understood, observed and effective.* Scott indicated that pre-signals had proved problematic, especially when the implementation had not fulfilled the specification. They cost around £100,000 and some had been

removed as ineffective. **Malcolm Roberts** (Colin Buchanan & Partners) commented that 24-hour bus lanes would often be impracticable given businesses' parking and loading requirements.

Another questioner *asked about how effective on-bus cameras had been in enforcing bus lanes.* Scott said that, with a camera on 1 bus in 6, this was getting better.

Martin Brazil *asked whether provision for wheelchairs was ever worthwhile*. Scott pointed out that it was legally mandated, but various comments were made that it also benefited those with prams and wheeled luggage, the less mobile, including many elderly people and also helped speed boarding and alighting.

David Hawkett *(FaberMaunsell) asked about the future, long-term objectives and the "end state"*. Scott said a great deal was still to be learnt, new technology would continue to appear, and he expected the programme to continue to evolve. However, congestion charging may prove to be the single most effective tool for managing demand and mode choice.

Report of discussion by Dick Dunmore

References:

1) *London Bus Initiative Phase 1 Evaluation* Technical Report for the Government Office for London, Transport for London, March 2004.[1]
2) *The London Bus Initiative – A Partnership*. Zyg Kowalczyk, LBI Programme Director, Transport for London Street Management. The Transport Economist, Summer 2001, Volume 28, Number 2.
3) *London Bus Initiative Partnership*, Framework Document, May 2000.

[1] An Executive Summary and the Technical Summary of this report are also available. Please contact Scott: Lester at the TfL Bus Priority Team.

Appraisal and Evaluation: the evolution and potential of the Treasury "Green Book"

Michael Spackman, Special Adviser, NERA Economic Consulting, and
Research Fellow, Centre for Analysis of Risk and Regulation, LES

University College London
23rd June 2004

This talk concerned the Treasury Guidance "The Green Book: Appraisal and Evaluation in Central Government", the current edition of which was published in January 2003. The Green Book sets standards for Departmental guides and advice for experts on technical details; it is also useful for a wider audience because it provides guidance on the basic workings of appraisal, and has some recognition internationally.

History of the Green Book – Publications and Subject Matter

Michael Spackman provided an overview of the 30 year history of the Green Book, illustrating its increasing complexity with the following table, and joking that the book might have "increasing returns to scale". The latest edition can be downloaded for free from the Treasury website.

Year of issue	Price (£)	Price (£ @ 2003 prices)	Pages	Pence per page
1973	[unpriced]	[unpriced]	16	-
1980	0.50	1.36	24	5.7
1982	1.00	2.23	40	5.6
1984	2.00	4.06	48 (+)	8.5
1991	7.80	10.59	92	11.5
1998	12.95	14.41	110	13.1
2003	19.95	19.95	114 (+)	17.5

The concept of "discounted cash flow" (DCF) as an appraisal technique in the public sector first emerged in the context of the nationalised industries, with guidance on DCF first issued in 1962.[2] In 1967 the White Paper *Nationalised Industries: Review of Economic and Financial Objectives* was published, in which a standard "test discount rate" (TDR) was introduced. It was not until 1973, however, that the Treasury launched the first edition of what was to

[2] The use of DCF in the early 1960s, by British Rail, was highlighted in the subsequent discussion.

become the Green Book. Its scope was restricted to the TDR and discounting, though its application was extended beyond nationalised industries to all investment in the public sector.

Whilst the 1973 guidance was prepared by the Management Accounting Unit of HM Treasury, the second edition in 1980 was produced by Treasury economists. It also concentrated on the TDR, but included single paragraphs on other issues. In contrast, the 1982 edition, "Investment Appraisal in the Public Sector" provided general guidance and its basic structure has been retained ever since.

Changes to the political environment were reflected in the guidance and supplementary notes published in the 1980s, covering subjects such as private finance and public purchasing. The first edition to be published commercially, in 1991, had appendices on evaluation,[3] non-marketed outputs, risk, and land and buildings. For the first time, the scope for appraisal was widened to include policies, programmes and projects. The 1997 edition was not dissimilar to its predecessor, with some change of emphasis and language.

The current, 2003, edition has additional supplementary papers on optimism bias and on treatment of tax in private finance initiatives and public sector comparators.

Michael summarised the evolution of the publication and subject matter of Green Book as follows.

Changes

Accountancy	⇒	Economics
Public services an appendage to NIs	⇒	Public services centre stage
Discounting	⇒	General analysis
Investment only	⇒	Policies, programmes and projects
Ex ante appraisal only	⇒	ex ante appraisal and ex post evaluation
Analytical only	⇒	Analytical and management
In-house typing/printing	⇒	Commercial semi-glossy (and electronic)

Things that have stayed the same

Advisory, but with National Audit Office in the background

Central government (Departments and Agencies)

[3] Appraisal that is ex-post, i.e. after the project / initiative has been implemented.

History of the Green Book – Technical Changes

Michael said that, whilst the discount rate was one of the least important aspects of appraisal, it has always been the main driver for new editions of the Green Book.

The test discount rate (TDR) was introduced in 1967 to be 8% (per annum) in real terms. It was derived from the return "looked for" on low risk projects by the private sector. It was subsequently increased to 10%, reflecting "pressure on resources".

The first Green Book of 1973 noted the disagreement of that time between using a social time preference approach or a social opportunity approach in deriving the discount rate. It also noted the relevance of the borrowing rate for financial appraisals.

The 1980 Green Book contained only minor revisions to the 1973 edition, but also included text on transfer payments and shadow prices. The 1982 edition had been expanded to serve as a general guide, with text on the setting of objectives, choice of options and other standard components of appraisal.

The 1984 Green Book specified 5% as the standard public service discount rate. It advocated risk neutrality, but made passing reference to the financial economics literature.

The choice of discount rate was strongly debated within government in the late 1980s, with nationalised industry interests arguing for 8%, and public service interests arguing for a lower rate, consistent with social time preference. In 1989, in an official statement, the public service discount rate was set at 6%, whereas the required rate of return for nationalised industries was set to 8%.

The 1991 Green Book gave strong coverage on the rationale for a discount rate, discussing the required rate of return and the cost of capital, including systematic risk. The public service rate was, however, explicitly derived from social time preference, estimated to be between 4% and 6%. The 1997 edition, produced before and published just after the General Election, was technically similar and retained the same numbers.

Work started in earnest on the current edition of the Green Book from 2000, and a consultation draft was published in 2002, containing some very new ideas. Some of these were abandoned for the published 2003 edition, though the new edition contains some significant technical changes from 1997.

The 2003 Edition of the Green Book

Michael said that he was preparing an academic paper discussing the new edition of the Green Book, and his comments that evening emanated from his ongoing work for that paper, and so should be regarded as provisional. He would welcome feedback.

Whilst the Green Book is intended to provide guidance on appraisal to achieve the public interest, it is influenced by politics and technical fashions. Michael set out some of the important factors influencing this particular edition. These included low real interest rates (medium term real rate of 2.2% in 2002 compared to 4.0% in 1988), and nationalised industries no longer being a general issue. The Chancellor of the Exchequer was keen to promote investment and private finance; he was also, in comparison with the Thatcher era, concerned with distributional issues. Climate change had meant that appraisal over the very long term had risen in prominence.

It was also the first time that the Green Book was subjected to public consultation, and that process resulted in an improved final version.

Michael identified the main changes in the latest edition as being:

- improvements in presentation, especially through use of examples;
- explicit guidance on distribution of impacts;
- a new procedure for countering optimism bias;
- more emphasis on monetary valuation of impacts;
- integration with other government guides;
- changes to the value and presentation of the discount rate and cost of capital; and
- declining long-term discount rates.

Michael welcomed the more specific guidance on appraisal of distributional impacts in this edition. It had succeeded in raising the profile of distribution in the Treasury. The consultation draft guidance had not been well thought through, however. In particular, it advocated adjustment of all impacts for income disparities, thereby failing to recognise that many established procedures already applied the same weighting of impacts to citizens irrespective of their incomes, so that such an adjustment would be double counting. The guidance in the final version was more sensible, though it is not clear that the approach is easy to apply.

Optimism bias is the term used to describe the tendency in appraisal to be over-optimistic about key project parameters, particularly by under estimating capital costs. It has always been a significant problem. The Green Book now advocates (unless there is strong evidence that such risks have been adequately assessed) explicit percentage adjustments, derived in some Treasury commissioned research, to correct for these distortions. Michael questioned the wisdom of using such a formal approach, but said that the new guidance had raised the profile of the issue, which was a good thing.

The extra emphasis on optimism bias might be partly attributable to its central role in comparing PFI proposals with public sector comparators, where public sector adjustments for optimism bias generally, and quite properly, apply only to the public financed option. The PFI remains a politically popular policy and the Government may have been concerned that the introduction of a lower discount rate should not unduly reduce its scope.

The draft Green Book implied that all impacts should be valued, and that cost benefit analysis is all that is required. Such advice is misguided: it is not realistic to value all aspects of Defence policy, for example. Other approaches, such as cost-effectiveness analysis, often have a larger role. Whilst the view on valuation is toned down in the final, 2003, version, the attitude is still that, with sufficient effort, everything can be valued. This contrasts with the Preface to the 1997 edition: "Appraisal will need to take account of the policy context in which decisions are made. These decisions often need to reflect not only formal analysis, but wider strategic or managerial considerations." There is no such statement in the current edition.

The new edition contains more cross-references to other guidance in government, in part because there are more government guides. For example, there are references to the Office of Government Commerce Gateway procedures, and to the Cabinet Office Strategy Unit's Policy Hub. Surprisingly, there is no explicit mention of "The Magenta Book: Guidance Notes on Policy Evaluation" (though the latter's web page mentions the Green Book). Michael suspected that this was because the latter was developed by social researchers, and that the world of social policy evaluation was not yet joined up with the world of economics.

In the new edition, the specified standard discount rate is 3.5% - a big reduction from the previous 6%. The presentation of the discount rate and the cost of capital is also changed. The change is not, as the Green Book implies and is widely assumed, because the previous rate contained a significant risk premium; nor is it the case that the current rate is the first time that it has been based on social time preference.

The Green Book uses an elasticity of marginal utility (μ) of 1 to derive the discount rate on the basis of a very small and rather curious selection of literature. An impartial reading of the literature would certainly give a rather higher number (perhaps 1.5 to 2). The discount rate is not overly sensitive to this assumption, however: if an elasticity of 2 were assumed, the discount rate would rise to 4%.

Michael was concerned that the current edition contains no acknowledgement of the efficient markets hypothesis view of risk, in which the equity risk premium faced by the privately financed supplier of, say, a road measures a social cost which cannot be avoided by public financing. He believed that the social time

preference and risk neutrality were the correct approach for deriving the discount rate, but a failure to critique these counter arguments could store up problems for the future. Michael was also surprised that there was no reference to the government borrowing rate as potentially relevant in this context; this has led to an error in the Green Book guidance on tax treatment in the context of PFI and public sector comparators.

The new edition advocated the use of a declining schedule of discount rates for the appraisal of impacts over the long term. The guidance is correct in acknowledging that a short to medium term discount rate is too high to apply over the very long term. And the guidance may be appropriate when very long term impacts are relatively small. But Michael was concerned that this was not a sensible approach when the very long term impacts were substantial, because he argued that it served to obfuscate the impacts. Instead, methods were needed to present results effectively, thus allowing public opinion and decisions-makers to determine the appropriate weight of impacts in the very long term.

Scope for Further Development

Michael thought that the presentation could be brought more up to date, though cartoons were probably not appropriate. It was important to get the technicalities right and be based on sound research – there was always potential for further research.

He felt it important that (as stated in previous and current Green Books) the objective of such guidance should explicitly be to further "the public interest" as distinct from "achieving government objectives". It is difficult to define exactly what the public interest is, and this should be debated. It might be defined as informed public preferences (although it is not always possible to measure these). However the Green Book's content should be equally valid for different governments.

The limits of economics should be better recognised. Michael argued that there are many important things that we cannot value explicitly, and probably never will; for example the role of the public sector or international relations. It is misguided to attempt to value such effects; instead the focus should be on expressing the impacts clearly to decision makers.

More should be done to relate economic analysis to other techniques. Multi-criteria decision analysis had a useful role in dealing with impacts that cannot be valued. The issues tackled in the Magenta Book were also relevant.

Michael also noted that the Green Book guidance was directed at central government. Decentralisation had meant that public bodies were making major spending decisions without appraisal oversight, for example primary care trusts. Hence, there was a case for widening the reach of the appraisal guidance.

Conclusions

Michael concluded by saying that the Green Book is useful, but should probably be simpler; and unfortunately some of its impact had been lost because it focused on central government at a time when major decentralisation was occurring.

Whilst its economic orientation was sensible, it needed to have stronger coverage of multi-criteria techniques, which would enhance, not reduce, the value of economics. It should also be based on a good understanding of relevant research, and in some respects it currently fell short of this.

Whilst the Green Book's contents would always change with political and technical fashions, the focus should always been on appraising according to the public interest, and not according to government objectives.

Michael was concerned that in the medium term the basis for time discounting in government could change from social time preference and risk neutrality, which he supported, to market rates and the efficient market hypothesis, with probably higher and probably disparate private sector analogue rates; this should be resisted.

Finally he noted that the Department for Transport (and to a lesser extent the Department for Environment Food and Rural Affairs, DEFRA) would continue to be the central government leader in the application of cost benefit analysis.

Discussion

Tom Sansom *(GMPTE) said that whilst he liked the Green Book he felt that its advice had yet to be properly taken up in the transport sector. For example there were failures to explore options before proceeding with a preferred option, and inadequate application of ex-post evaluations.*

John Crawford *(independent) noted that British Rail were using investment appraisal as far back as 1963/64. He also made the point that the local authorities, making funding applications to the Scottish Executive, had to appraise their schemes in conformity with Scottish Executive appraisal guidance, STAG.*

Don Box: *British Rail was one of the first organisations to use a discount rate as a tool to decide between competing projects.*

Stephen Plowden *(independent): the Green Book is not properly adhered to in the allocation of the transport budget. It is disappointing that the Treasury do not notice bad practice and discipline the Department for Transport. He argued that some small schemes have huge returns, for example cycle schemes, but tend to be neglected.* MS: maybe it is time that the National Audit Office reviews procedures in departments.

Nigel Harris *(The Railway Consultancy) different parts of the economy have different appraisal rules.* MS: the Green Book is designed for the public services, where most applications do not entail sales revenues and issue of efficient competition with the private sector. However in issues of pricing policy, say for a public body such as the Ordnance Survey, other issues arise, which in previous Green Books were covered in a discussion of "required rates of return".

Anna Hill *said in the context of generating options there were limits to economics, because it was working within the context of normative judgements. For example disability access standards needed to comply with the Disability Discrimination Act, so limiting the range of options.* MS: legislation is often drawn up without objective appraisal to encourage considered trade-offs between costs and benefits – whether the benefits are easily valued or normative judgements. Such failings needed to be broadcast as much as possible.

Gregory Marchant *(independent) asked how much of an impact can the Green Book have when it comes to considering long term projects such as climate change.* MS: the Green Book can have quite a lot of influence in this area. The Green Book says that a discount rate of 3.5% should be used for impacts up to 30 years, then it has a schedule of declining rates up to 300 years, beyond which it should be 1%. This is crazy and misleading advice, and yet DEFRA and probably academic researchers use it. When the impacts are *very* long term, it is not appropriate to discount them to a present value. They should be expressed to decision makers in a way that they can make their own judgement, and there are ways to do this without wrapping everything up in a present value. Climate change is essentially a distributional issue, similar to an overseas project, requiring much political ethical judgement. Economics has a malign influence deriving overall present values in this context.

Report by Emily Bulman

Report on *"Procedures for dealing with optimism bias in transport planning"* was published on 9th July 2004 by Department for Transport.

http://www.dft.gov.uk/stellent/groups/dft_localtrans/documents/page/dft_localtrans_029645.hcsp

The Demand for Public Transport

Neil Paulley, Transport and Research Laboratory

University College London
27 October 2004

Neil Paulley of the Transport Research Laboratory presented on "The Demand for Public Transport: a practical guide", recently published as TRL Report TRL593 and available at www.trl.co.uk.

Background

"The demand for public transport: a practical guide " was produced by a Working Group included TRL, CTS University College London, ITS Leeds, TSU Oxford and TSG Westminster, plus ATOC and CPT. It is authored by Richard Balcombe (TRL), Roger Mackett (CTS), Neil Paulley (TRL), John Preston (TSU), Jeremy Shires (ITS), Helena Titheridge (CTS), Mark Wardman (ITS) and Peter White (TSG). Roger Mackett and Peter White were both in the audience.

The report updates and renews a 1980 study on the same subject, an accumulation of the then current wisdom, which became known as the "Black Book". The update project was funded by EPSRC and had support from local and national government and the public transport industry and was steered by a 20-person Steering Group chaired by Mike Walsh of DfT. It ran for 2 years from 2001 and the report was finally published in 2004. The updating work has aimed to assemble evidence on the subsequent changes in parameters and the nature of demand, and to make it available to stakeholders. The focus was on gathering and making coherent existing research rather than new research, and on urban and suburban rather than rural or interurban travel.

Over 400 sources of published and unpublished material were reviewed, including the databases of TRL and the universities. There was also a range of bilateral discussions with partners in industry.

The main text of the report consists of a discussion of the research and summaries of the findings in each area. For the effects of fares, an Appendix deal with statistics such as means and standard deviations of the range of elasticities identified, and a meta-analysis includes further regressions on 902 elasticity values from 104 studies.

Illustrative results

Neil presented a range of illustrative results from various subject areas.

Fares elasticities of demand for public transport have frequently been studied, and although they vary widely even when split by mode, by time of day and by

short, medium and long range, had generally risen since the 1980 study and are now higher in the UK than is typical elsewhere. Neil summarised the results for short-term elasticities as shown below.

Table 1: Short-term elasticities

Fares elasticity of demand	UK 1980	Non-UK now	UK now
Bus	-0.30	-0.38	-0.42
Metro	-0.15	-0.29	-0.30
Suburban rail	-0.50	-0.37	-0.58
Overall	**-0.30**	**-0.35**	**-0.44**

The factors which drove the variation in elasticity seemed to be as expected.

Table 2: Magnitudes of elasticity values

Fares elasticity of demand	Smaller	Larger
Trip purpose	Work	Leisure
Type of area	Urban	Rural
Length of response	Short run	Long run
Methodology	Conditional	Own

However, overall generalised cost elasticities were higher, as shown below.

Table 3: Generalised cost elasticity

	UK now
Bus	-0.4 to -1.7
Underground	-0.4 to -1.9
Rail	-0.6 to -2.0

Income elasticities of bus demand had also been derived from a number of sources, as shown in table 4 below. Rail income elasticities are generally positive and up to 2.

Table 4: Income elasticities			
Basis	**Data source**	**Short run**	**Long run**
Passenger-kilometres	National	0	-0.15 to -0.63
Journeys	National	0	-0.45 to -0.80
	Regional	0 to -0.29	-0.64 to -1.13
	County	-0.3 to -0.4	-0.6 to -0.7
	PTEs	-0.7	-1.6

Cross-elasticities had been estimated for typical urban areas.

Table 5: Urban cross-elasticities				
		Use		
		Bus	**Rail**	**Car**
Cost/fare	**Bus**		0.24	0.057
	Rail	0.08		0.054
	Car	0.55	0.59	

A matrix of generally lower elasticities had been estimated for London.

Table 6: Cross-elasticities for London					
		Use			
		Underground	**Bus**	**Rail**	**Car**
Cost/fare	**Underground**		0.06	0.03	0.02
	Bus	0.13		0.06	0.04
	Rail	0.06	0.11		N/A
Miles	**Underground**		0.09	0.04	0.03
	Bus	0.22		0.10	0.09
Journey time	**Bus**	0.18		0.08	0.06

Eight aspects of quality were also examined: access/egress, service intervals, waiting environment, in-vehicle time (IVT), vehicle characteristics, interchange, reliability and information provision.

Walk time seemed to be valued at 1.4-2.0 times IVT and **access and egress time**, including all activities other than IVT, seemed to be valued at 1.3-2.1 times IVT.

On **vehicle characteristics**, SP suggested that low floor buses were worth around 5-14p a trip, giving average passenger growth of around 5%. Applying the same benefit to a typical fare of around 70p with a typical price short-run price elasticity of -0.4 suggests a comparable figure of around 6%. Refurbished rail stock was worth around a 1.5% reduction in fare and new stock worth around a 1-2% reduction in IVT.

On **service intervals**, elasticities of demand with respect to vehicle kilometres were around 0.4 (short run) and 0.7 (long run) for bus and around 0.8 for rail.

Interchange penalties, including walking and waiting, averaged 21 minutes for bus and 37 minutes for rail.

Discussion

Gregory Marchant *(Retired) commented that the interchange penalties, 21 minutes for bus and 37 minutes for rail, seemed high. Surely they would be lower for, say, a regular commuter at East Croydon?* Neil acknowledged that these were averages taken over a wide range of circumstances, and by implication actual values would vary.

Dick Dunmore *(Steer Davies Gleave) noted that bus and off-peak train fares had long been deregulated, and that in an efficient market operator would have priced at the point where the long term elasticity was around -1.* Neil confirmed that the limited surveys available suggested an average long term elasticity of -1, implying that the operators are profit-maximising, although in principle operators mistakenly acting on the lower short term elasticities could be helping cause the long term decline in volumes. *Dick also wondered what the matrix of cross-elasticities in London implied for current policies, such as reducing the fares and increasing the frequencies of bus relative to those of other modes.*

John Cartledge *(London Transport Users Committee) wondered what had changed in the 22 years since the 1980 study, and what would be the appropriate policy consequences.* Neil acknowledged that much had changed: incomes, car ownership, the range of leisure activities and volume of leisure travel, and the balance of peak and off-peak demand. One issue was that price elasticities had increased, and it was therefore harder for operators to increase revenue through price alone and they had to find other levers. **Dick Dunmore** *could not reconcile the thoughts that increased leisure travel had been driven by higher incomes and that leisure travel was inherently more price-elastic.*

What was the income elasticity, and what effect was it having? Or was the higher price-elasticity merely a reflection of profit-maximising prices?

Robert Cochrane *(Independent) asked what differences had been seen between urban and rural areas.* **Roger Mackett** *(University College London) noted that the "rural" data was largely suburban or edge-of-urban.*

Andrew Evans *(Imperial College) asked about the rail elasticity of demand with respect to income.* .Neil indicated that rail income elasticity is generally positive, possibly up to 2. **Peter White** *(University of Westminster) said that it "should" be positive, but that there was a car ownership effect. Research in Spain had identified a positive elasticity of public transport (bus and rail) demand with respect to income.* **Alan Peakall** *(Halcrow) said that the income elasticity of bus transport had been positive in the early 20th century, presumably before car ownership was a material complication.*

Don Box *(retired) wondered what policies would minimise net costs.* Neil agreed that costs needed to be taken into account in deciding policy on concessionary fares, although operators are quite happy to argue that they impose high costs as it provides a source of income to the industry.

Robert Barrass *(Independent) said that the report identified a lot of issues, but asked what it said about land use, particularly in the context of ODPM's current proposals for new housing, and wondered whether brown field sites would be better.* Neil noted that, despite the planning guidance, new developments tended to be low density and car-based. **Derek Done** *(Derek Done Associates) thought that new developments might also be highly dispersed and wondered if demand-responsive transport, an "emerging issue", had a role to play.* **Peter White** *said that demand-responsive transport may not be cost-effective at £3-4 per trip while local authorities were withdrawing subsidies where fixed bus routes cost more than £2-2.50 per trip.* **Dick Dunmore** *noted that the last major experience of new developments was with the new towns, built to then best practice with dense public sector housing, low car ownership and subsidised public transport from the outset. The coming developments, in contrast, would be built a few houses at a time by private sector developers wanting to get high prices, which probably meant low densities, with public transport arriving only after the residents had ingrained car-based patterns of travel. In other words, everything was being done in the worst possible way.*

Mary Acland-Hood *(CPRE Somerset) wondered if the authors had identified areas in which further study was needed, and suggested it would be worth unbundling the effect of interchange to find the effects of step-free access, carrying baggage, and so on.* Neil admitted that further research needs were not defined, but it would be a major task just to keep the report up-to-date. **Gregory Marchant** *suggested that further research could be done on critical success factors: why had Brighton succeeded in increasing bus use when others had*

not? Neil agreed that this was a good point but was not aware of any studies of it. **Peter White** *said that the authors had spoken to the Brighton operator, but that some information was commercially confidential.* **Alan Peakall** *noted that Brighton's all-day tickets cost little more than a return.* **Robert Cochrane** *said that establishing the critical mass for a high-density corridor helps.* **Mary** *wondered whether some operators missed a trick, in that stability was needed to create confidence in a service, but they did not trial services for long enough for demand to emerge.*

John Cartledge *suggested another possible emerging issue, the trend to travel at a wider range of times of day, and in particular the need to provide for more than just am and pm peak commuter travel, with Sunday services being reinstated and some all-night services, particularly in London.* Neil noted that security would remain an issue for night buses in many places, but there would still be a need to find sufficient demand. **Peter White** *confirmed that some commercial operators were adding evening and Sunday services, citing a housing development in Chelmsford which had services until 7.30pm, late enough to commute to London without becoming car-dependent.* **Robert Cochrane** *said that experience in the US had been that a morning service need only cover normal starting time, but a wider spread was needed for the evening return.*

Report by Dick Dunmore, Steer Davies Gleave

The Editor

The Transport Economist
23 December 2004

Sir

Tim Powell suggests that my advocacy of lower speed limits is based on an arrogant belief that I know what is best for society. It is in fact based on objective calculations grounded in orthodox economic theory. The reasoning was set out in Mayer Hillman's and my report Speed Control and Transport Policy, published by Policy Studies Institute in 1996. This report was favourably reviewed both in the Transport Economist and in the Proceedings of the Chartered Institute of Transport. Both reviewers commented on how detailed the supporting arguments were.

Our calculations of the time penalties associated with lower speeds were based on rather crude methods which exaggerated them. For this reason, among others, the report probably understated the case for lower speed limits. The case for changing the default urban limit from 30 mph to 20 mph, which Tim Powell particularly questions, is well supported, and extensive Continental experience with 30 km/h limits does not suggest that the "considerable disbenefits" that he fears would materialise. In its report European Best Practice in Delivering Urban Transport, the Commission for Integrated Transport said *"the one critical success factor underpinning best practice in all case study areas was the introduction of area wide 20 mph zones"*.

My former letter was inspired by disquiet about the multimodal studies, which seem to be the basis of the Government's revival of the road programme. In 1973, the Expenditure Committee of the House of Commons in its report on urban transport planning said *"the arguments used in favour of road building seem to us to be in error by presuming that the roads which we already have are being used in the most efficient manner in the context of the total transport situation"*. The committee went on to recommend *"that, as an urgent priority, all trunk and principal road schemes of urban road building which have not reached the exchange of contract stage should be re-examined ab initio"*. It might have been premature in 1973 to apply the same reasoning to the extra-urban road programme, but I suggest that it is high time to do so now. I hope transport economists can agree on this, even though we may have different views on which reforms to the rules for the use of the roads deserve most emphasis. It would be faint-hearted to leave the entire burden of opposition to current road building plans to environmental pressure groups.

Stephen Plowden
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stephenplowden@blueyonder.co.uk

TEG NEWS

NOTICE OF ANNUAL GENERAL MEETING
OF THE
TRANSPORT ECONOMISTS' GROUP

The Annual General Meeting will be held at 5pm on Wednesday 16th March 2005 in the Chadwick Building of University College London, Gower Street WC1. Enter by the main gates in Gower Street and turn right where the entrance to the Chadwick Building will be found. Signs will be posted directing you to the room within the building.

The agenda will be:

1 Apologies for absence

2 Chairman's report for 2004

3 Treasurer's report and Annual Accounts of TEG for year ending 31st December 2004

4 Election of Committee

5 Appointment of auditors

6 Any other business

The TEG Committee

The Group encourages members to attend the AGM. If you wish to nominate a member for 2005 please contact the Secretary, Dick Dunmore at: dick.dunmore@sdgworld.net.

The TEG would welcome members who wish to join the committee. The committee meets 3-4 times a year in central London to discuss the programme and general business of the Group. Please contact Dick if you are interested in joining the committee.

TEG Committee in 2004

CHAIR: **Roger Mackett**

VICE CHAIR: **Don Box**

SECRETARY and DEPUTY EDITOR: **Dick Dunmore**

DEPUTY SECRETARY: **Robert Cochrane**

TREASURER AND MEMBERSHIP SECRETARY**: Gregory Marchant**

PUBLICATIONS EDITOR**: Laurie Baker**

WEBMASTER**: Emily Bulman**

PROGRAMME CO-ORDINATOR **Peter Gordon**

COMMITTEE MEMBERS: **Martin Lawrence**