

BUS PRIORITY - ROUTE 220 MONITORING

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Note: The views expressed in this paper are those of the author and not necessarily those of other partners in the project.

1. THE MEASURES

The background to the South and West London project has been discussed in the accompanying paper by Robert Blitz and Matthew Yates. In this paper I intend to focus on Route 220, the route selected for intensive monitoring before, during and after the implementation of the measures which we designed.

The central section of the route, between Shepherds Bush and Putney Bridge, was the most badly affected by conjunction. Much of it is shopping street, virtually all of it is of restricted width; various congested junctions create queues. Today most of this section has bus lane - but in one direction only - the road is rarely wide enough to permit a bus lane in each direction. Most measures operate only at peak times so that servicing of frontage premises can be adequate. Even so, some measures have received some opposition.

2. HOW TO MONITOR THE EFFECTS OF BUS PRIORITY

The variable nature of traffic congestion makes difficult the assessment of how well an individual bus lane performs. It might be thought that to measure bus travel times before and after installation of the lane would be enough. These times could be compared and, if the bus lane has brought about an improvement, the "after" time will be less than the "before". In practice, on busy urban roads, this is a rather chancy procedure.

If the "before" measurements happen to have been carried out on a busy day and the "after" on a day when traffic flows smoothly, quite spurious benefits could be attributed to the bus lane. Conversely, if the "before" measurements were made on a smoothly-flowing day and the "after" on a congested day, it could be concluded that the bus lane has actually slowed buses.

Where possible, as on a with-flow bus lane set back from a junction, this problem has been tackled in the south-east sector by taking simultaneous measurements of journey times by buses and cars. On smoothly-flowing days, there will be few traffic queues and both car and bus journey times will be relatively speedy. On more congested days, the cars will be caught up in traffic queues and their journey times will be longer. The bus lane will enable buses to by-pass the queues however, and their

journey times should be much less affected. In a perfect world with a perfect system of bus lanes, bus journey time would be constant.

By comparing bus journey time with car journey time in the same half-hour periods, the effects of the bus lane on the survey days can be measured with some accuracy. Of course this technique can only be useful where the measures do not significantly reduce general traffic capacity - but a set-back bus lane like most of the Route 220 measures does not do so. An exception, such as the bus gate through Shepherds Bush Green which diverts cars around a roundabout and allows only buses to short-cut must be assessed separately and there is little alternative to the "before and after" technique with its problems with the background variability of traffic congestion. However, this is the exception rather than the rule at present.

3. ECONOMIC JUSTIFICATION

CBP developed for the South and West London Project, and continues to use on all its bus priority work, procedures and algorithms (in the form of a spreadsheet) to examine the performance of a bus lane against the usual criteria used by Government to assess transport schemes. A new bus priority proposal can be assessed on the basis of its predicted performance. Measures that have been implemented can be assessed on the basis of actual survey results.

The main factors considered are:-

- ride time - to bus passengers, other users of the priority and to non-users
- wait time - traffic congestion can mean long waits for passengers downstream
- reliability - the assumption is made that many passengers have a desired arrival time and make an allowance for unreliability
- crew costs - to bus operators
- vehicle operating costs - buses and other vehicles
- revenue from extra trips generated by a better service
- other benefits of extra trips
- capital and maintenance costs of the bus priority measure.

Evaluations of the Route 220 based on actual survey results have been carried out and show that in each year the measures produce benefits similar to the "one-off" costs of their implementation.

4. WHAT THE PASSENGERS WANT

In June 1995 more than 1600 bus passengers on Route 220 were interviewed by CBP to gain an insight into their attitudes to the bus priority measures. A majority of today's passengers on the route are "new users" - people who did not use Route 220 some two years ago. Most of the new users were doing so because of lifestyle changes - new home, new place of work or education etc. However, of the 47% who had made a similar journey two years ago, one in twelve had previously used a car for similar journeys.

Put another way, some 3.7% of passengers on the service were people who had previously used private cars for similar journeys. Passengers who had switched to Route 220 from some other means of transport were asked for their reasons and over 30% of this group cited factors concerned with bus priority - better reliability, shorter journey times etc. The latest annual patronage of Route 220 is some 3.6 million journeys (counting Mondays to Fridays only, when most of the bus priorities operate) which suggests that some 40,000 bus journeys per year are being made on Route 220 (alone) which, in the absence of the bus priority measures would instead have been made by car. Not surveyed (and probably unsurveyable), were the number of people who, in the absence of the bus priority measures, would have acquired a car. Also excluded from this figure is the extra transfer that the measures will have brought to services other than Route 220. Because of the large number of buses on other routes which use the measures, this total is likely to be considerably greater than for Route 220 itself.

Long-term users of the service were asked about their perceptions of the service standard since the bus priorities were introduced:-

- 26% thought reliability better (compared to 17% who thought it worse)
- 36% thought that bus stop waiting times were better (compared to 18% who thought them worse)
- 25% thought overall journey time better (15% thought it worse)

Responses from frequent users of the service were even more favourable than these "global" figures. However, replies on the approaches to Putney Bridge (where extensive long-term road works meant that bus lane was not operating and that delays were unusually severe) were less favourable.

5. HOW THE SERVICE OPERATES TODAY

Against a background of generally falling travel speeds, Route 220 has performed extremely well in terms of end to end journey times. On the central section of the route where the bus priorities are at their densest, mean journey times, measured typically on three survey days per annum, show reductions both morning and evening when comparing 1992 with 1996. From Shepherds Bush to Fulham, the mean journey time averaged over all buses fell from 21 minutes to 18 minutes in the morning peak and from 29 to 23 minutes in the evening. From Fulham to Shepherds Bush the mean journey time fell from 19 to 18 minutes in the morning peak and from 32 to 18 minutes in the evening.

Perhaps even more importantly, the variability of journey time has generally been reduced. Taking averages over each day's peak periods (rather than over the whole survey) journey times from Shepherds Bush to Fulham ranged in 1992 from 17 to 23 minutes in the morning peak and from 29 to 30 minutes in the evening. In 1996 these ranges were 16 to 19 minutes and 21 to 28 minutes. From Fulham to Shepherds Bush the ranges in 1992 were 18 to 20 minutes in the morning and 21 to 53 minutes in the evening. In 1996 they were 17 to 19 minutes in the morning and 16 to 20 minutes in the evening.

Ideally, it would now be possible to report that Route 220 is now the perfect bus service with every bus running precisely to schedule and passengers able to plan to arrive at the stops seconds before the arrival of the bus. Compared to conditions in 1992 at the start of the project, much has been achieved. The longest journeys today are similar to the shortest journeys then. Buses maintain their spacing along the route. Passengers feel the benefits and are using the service in ever greater numbers. But this is still along way short of perfection. Because of restricted road widths and the fact that capacity for general traffic has been maintained, there are still points where congestion can occur and the buses receive no protection. Furthermore, Route 220 now has very little effective recovery time available and this can adversely affect the frequency of the service and reliability of waiting times. The major gains in service quality and in patronage could have been even greater had the present schedule been somewhat closer to that allowed before the bus priority measures were installed.

To sum up, the major lessons of our experiences on the project are believed to be:-

- bus priority can achieve major improvements in service quality and patronage, even on busy urban streets
- the measures were excellent value for money, covering their implementation costs in around one year
- on such busy urban streets, bus priority proposals will generally seek a balance between protection of the bus, preserving general traffic capacity and satisfying the needs of frontagers - residents and traders - for parking and loading facilities
- if general traffic capacity is maintained it is not possible to insulate buses from all the consequences of traffic congestion (except on those unusual roads where width is ample).