Background Paper 3

Bus Priority and Reliability

1 Introduction

1.1 A great deal of work has been done over the years by TfL and particularly the boroughs to plan, introduce and enforce bus priority. Schemes can take many forms in addition to the 'traditional' bus lane. Bus-only access to housing areas, bus shortcuts and protection of bus stops from parking / loading all feature on the network. In addition all of London's buses are equipped to communicate with traffic signals which can be set to give them priority where feasible.

1.2 Nonetheless, London's growth means that fresh impetus is needed. Buses are the most efficient people-carriers on the road network. The Mayor's Roads Task Force examined the significant and growing pressures on road space and commended bus services as an important element of the response:

> *"As London grows, bus journey times and reliability will be threatened by increasing pressure on road space from other users. Given the important role of buses in moving large numbers of people, it is essential that bus reliability and journey times are at least maintained".*

1.3 The TfL Business Plan has allocated £200m over the period to 2020/21 for the development and implementation of schemes to give buses new priority at pinch points and along new high-quality bus priority corridors serving key growth areas. With around 80 per cent of bus services running on borough-controlled roads, TfL staff will work with borough officers to ensure that this is spent in the most cost-effective way.

The outlook for road space

1.4 A host of issues affect the reliability of the bus network, including congestion, technical failures, accidents and on-board disputes. Congestion is the greatest cause of lost mileage and significantly impacts upon reliability. In 2012/13 two per cent of scheduled mileage was not operated due to the need to cut buses short of their terminals due to traffic delays.

1.5 Where possible, the impacts of congestion on buses are mitigated through the network planning process. The Roads Task Force report sets out the possibility of an increase in congestion of 14 per cent by 2031, driven primarily by the need to allocate more space on the road network to walking and cycling.

1.6 The bus network is focused on London's town centres, where there are quite naturally many proposals for highway schemes. Buses cannot dynamically reassign to other roads and, in any case, it is not generally desirable to move them away from the places people want to go by bus. Where the bus network is not protected from increases in congestion reliability will worsen and TfL's ability to address this will be limited due to constrained growth in operated kilometres.

1.7 It is also important to protect buses during construction. Additional explicit consideration of how to offset the remaining negative effects on buses is needed, for example, to seek offsetting time savings at other places on the network.

Managing Reliability

1.8 The network planning process aids the delivery of a reliable service through route structures that ensure routes are operable. Additional resource is introduced into the network when required and temporary or permanent schedule changes are made where appropriate.

1.9 The resilience of each route is in some way determined by the degree to which it can recover from factors affecting reliability. The best way to accomplish this is through layover at the termini. The network is managed to ensure sufficient space is provided for each route, however this is not always possible. Additional reliability impacts arise when terminal space is relocated to sites which are, from a bus perspective, less efficient.

1.10 Operators have full use of iBus service control tools enabling active management of performance. Performance is monitored through Excess Wait Time (EWT), an easily understandable, customer focused metric which can be disaggregated by route, region and time period and is reported externally.

1.11 New techniques are being introduced to analyse Automatic Vehicle Location (AVL) data to enhance understanding of network performance and the impacts of congestion on reliability. An example of this type of analysis is presented in appendix 1.

2 Improving reliability through increased investment in bus priority

2.1 To maintain reliability at today's levels will be challenging given the forecast growth in congestion. TfL is therefore looking to refresh its approach to bus priority. See appendix 2 for the current provision of bus lanes in London.

2.2 £200 million has been identified in the TfL Business Plan to develop and implement two programmes: Bus Pinch Points Programme (BPPP) and High Quality Bus Priority Corridors (HQBPC). Feasibility work is in progress. It is intended that both programmes will be complete by 2020/21. Engagement with stakeholders on these two programmes will commence later this year.

Bus Pinch Points Programme

2.3 The Bus Pinch Points Programme (BPPP) will target key locations across London delivering schemes to improve bus reliability. Preliminary pinch point locations were identified through a process of evaluating routes with the highest levels of traffic lost mileage and congestion hot spots. Sites where particular routing improvements can be delivered have also been identified.

2.4 Feasibility work to examine the pinch points identified is underway to ensure these are appropriate locations to develop schemes. After the feasibility studies are completed they may be substituted for locations where bus delays are

greater or where more feasible mitigation measures can be proposed. Enhanced datasets will be used to help inform this programme.

High Quality Bus Priority Corridors

2.5 The High Quality Bus Priority Corridors (HQBPC) programme will support growth in London by unlocking new development through creating and improving transport links. It will also promote bus use by improving the urban realm along those corridors.

2.6 The level of development in all the Opportunity and Growth Areas will be reviewed to identify schemes that could be taken forward for further feasibility and design.

Local Bus Challenge

2.7 The Local Bus Challenge is a low cost initiative between the boroughs, bus operators and TfL. The programme is based around a Joint Inspection Meeting (JIM) whereby officers undertake a route test (for the whole route) and decide on a programme of targeted traffic management interventions aimed at improving reliability.

2.8 Route 191 in Enfield was chosen as a pilot due to its high level of traffic lost mileage due to congestion. Using LIP funding, a number of small scale, localised improvements were made to the road network, including optimising junction capacity, introducing parking restrictions, amendments to traffic calming and bus gate re-optimisation. Following the success of this trial, fifteen boroughs have participated in or committed to Joint Inspection Meetings.

Other highway schemes

2.9 Impacts on buses of all wider highway schemes will also be considered at an early stage in their planning.

Appendix 1 – Example of potential analysis using AVL data: bus speeds

The potential uses of automatically-generated bus speed data in the strategic planning of bus priority are illustrated below. Please note that this is indicative only.

Average bus speeds in London reflect general traffic conditions, with the lowest speeds in central and inner London corresponding to the highest density of population, lower road space and more signalised junctions.

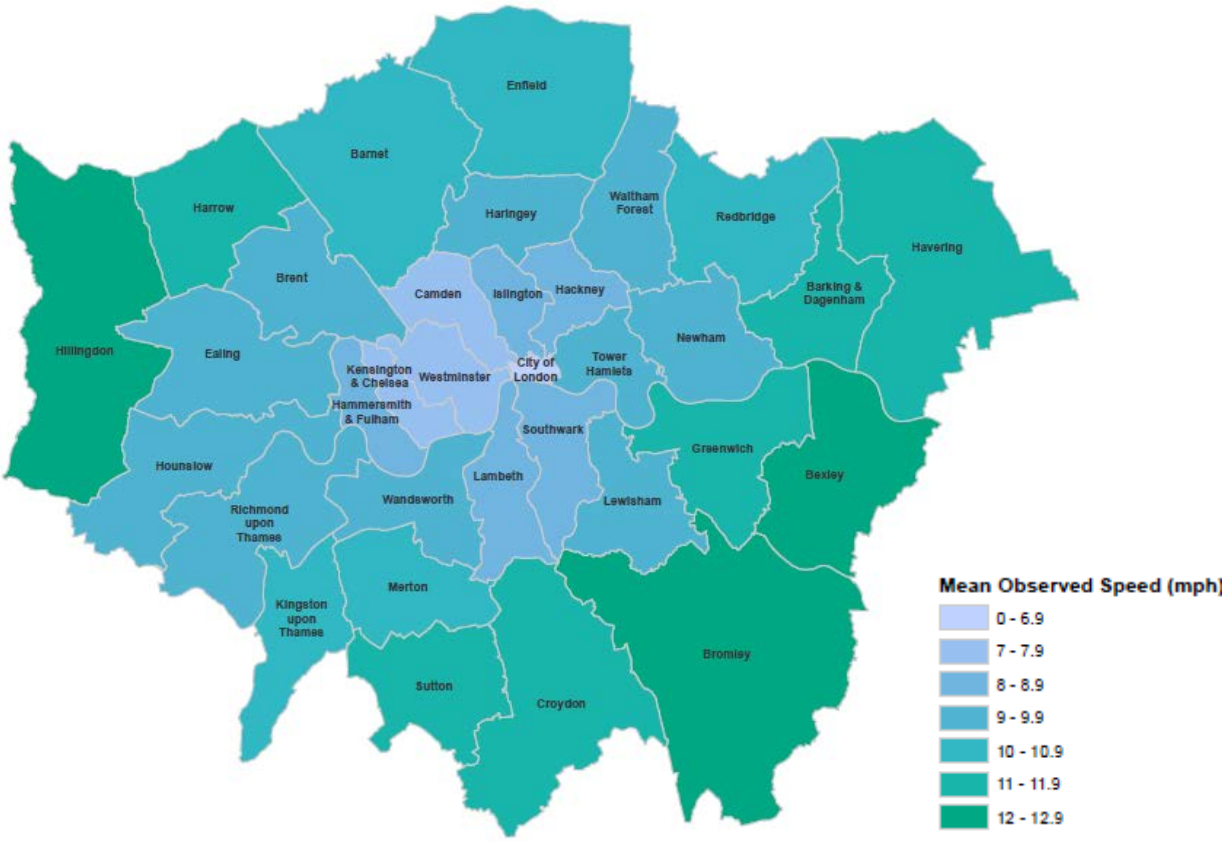

Figure 1: Average bus speeds by borough (PM Peak (1600-1900), Monday to Friday, Period 11 - 2012/13, dwell times excluded)

A peak to night-time speed ratio has also been calculated. ‘Night time’ is defined as the average speed for trips operating after midnight.

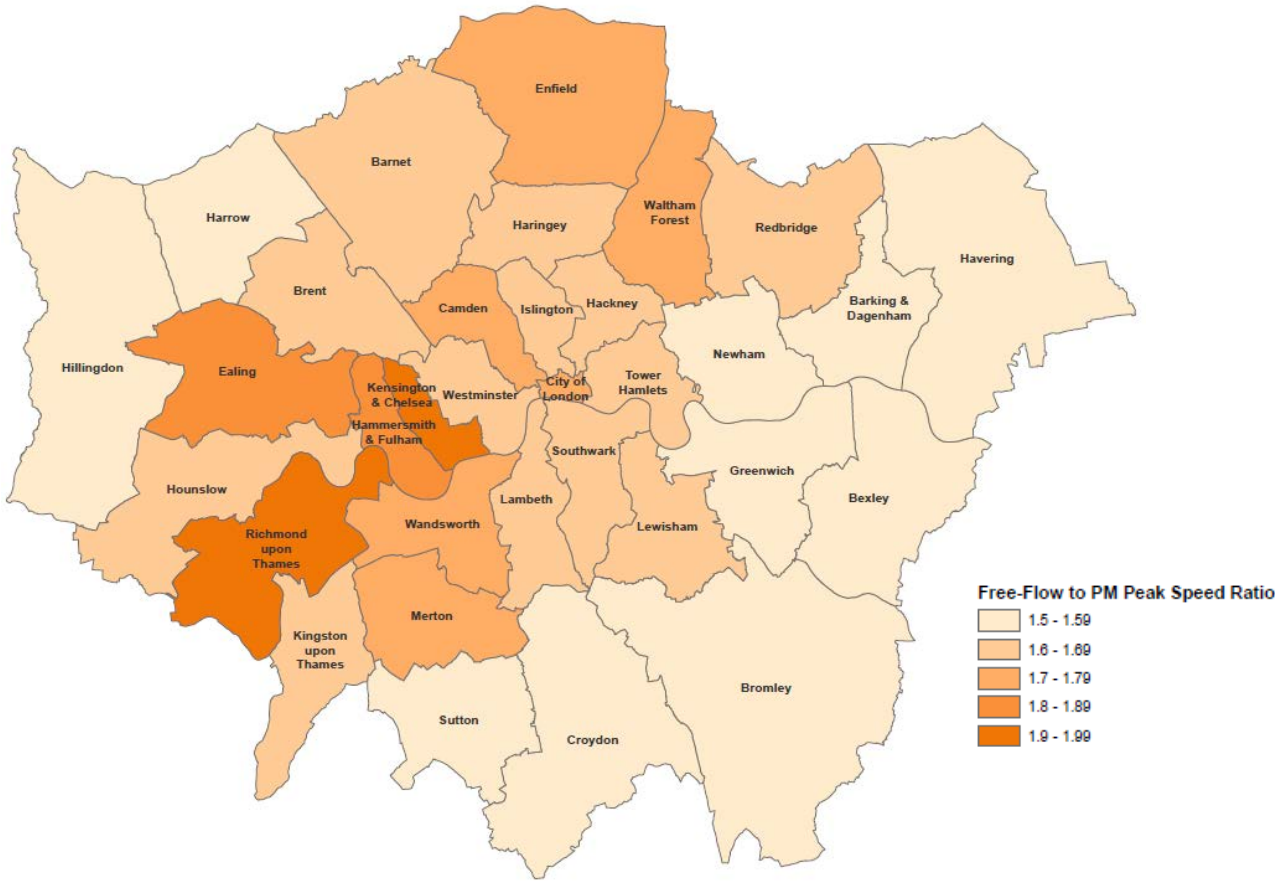

Figure 2: PM peak to night-time bus speed ratio (Monday to Friday, Period 11 - 2012/13, dwell times excluded). Note: night-time dataset is sparser for boroughs further from central London

A higher ratio indicates a greater difference between night time and PM peak average speeds. Outer London boroughs generally have a lower ratio.

Appendix 2 – Bus lane kilometres by borough

Bus lanes protect around three per cent of the road-kilometres on the bus network in London (the proportion of bus-kilometres protected will be higher).

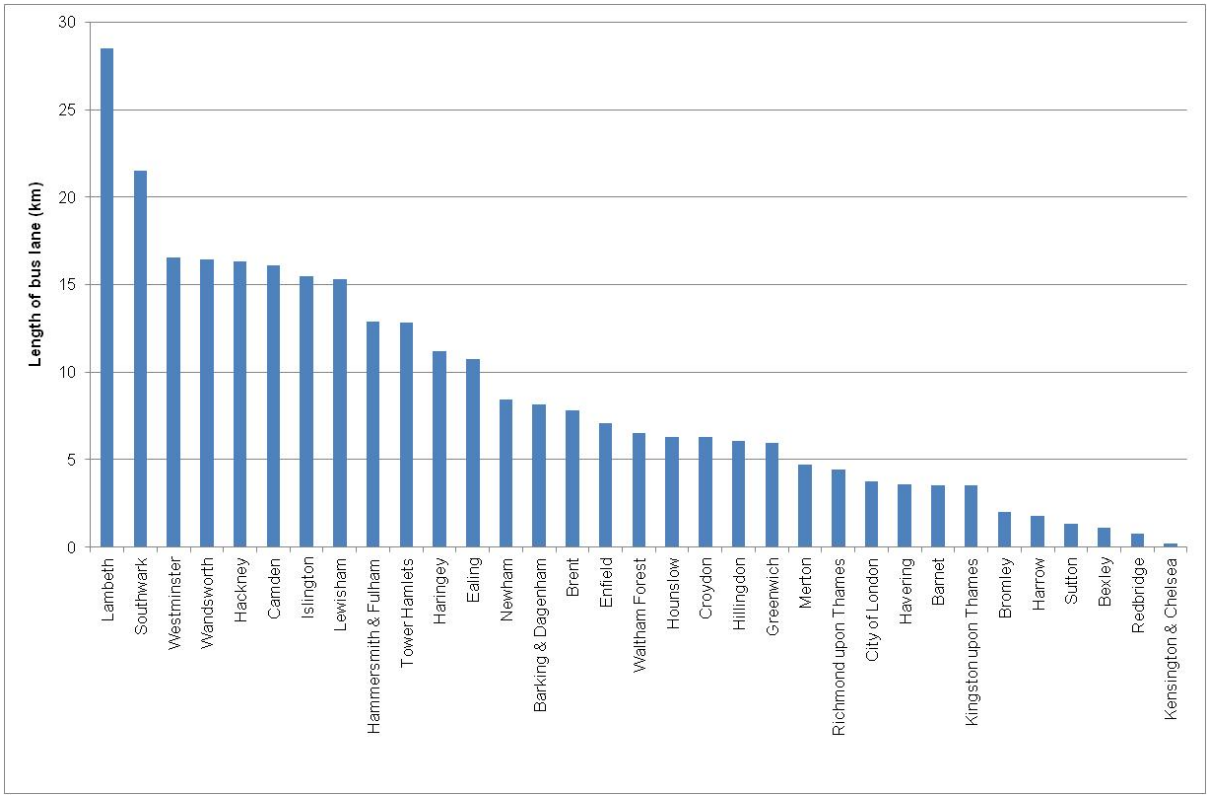

Figure 3: Total length of bus lanes by borough (283km - March 2013)