Board meeting 26.01.10

Secretariat memorandum

Author : Vincent Stops

Agenda item 6
LTW 338
Date 15.01.10

Developing a smoothing the traffic flow strategy

1 Purpose of report

1.1 To update members on further work being done by TfL to develop a *smoothing the traffic flow* strategy

2 Recommendations

2.1 Members to debate this report with TfL officers.

3 Background

3.1 At its June 2009 meeting the Board heard Beverly Hall of TfL describe work to develop the Mayor's *Smoothing the Traffic* agenda. The London TravelWatch report and minutes of the discussion that took place are appended.

3.2 Since then TfL have published research into the public's perceptions of what smoothing the traffic flow means and have now developed a strategy which they have been asked to present to members. The strategy is also appended.

3.3 The strategy is still work in progress. TfL are proposing a roundtable of stakeholders to discuss the strategy further.

4 Discussion of strategy

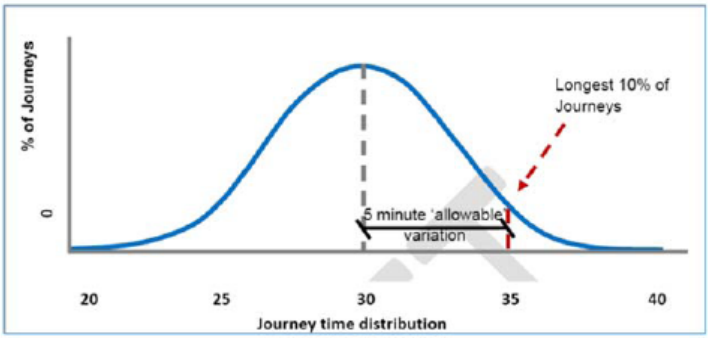
4.1 TfL now propose a definition of *smoothing traffic flow:*

The Mayor's aim in smoothing traffic flow is to increase the reliability and predictability of journeys, including by tackling "stop-start" traffic conditions which increase emissions of harmful pollutants. The aim of this work is to improve conditions for existing road users (including cyclists and pedestrians), not to create additional capacity that would increase car journeys.

4.2 This is welcome and responds to the Board's concerns regarding the possibility that additional capacity would lead to additional general traffic.

4.3 The strategy also proposes a measure of *smooth traffic flow*, i.e. it is suggested that an indicator should be developed to measure the percentage of journeys within 5 minutes of a specified typical journey time. This is best illustrated by reference to the strategy page 3:

Average Journey Time and 'Allowable' Variation from the Mean



Assuming an 'allowable' daily variation in journey time of up to 5 minutes (i.e. trips completed within 5 minutes of the mean journey time are assumed to be on time), ie: if the network (or an individual route) can be managed more reliably such that 9 out of 10 journeys are completed within this time, we can consider it to be 90% reliable.

4.4 It is noted in the strategy that journey time reliability is closely related to traffic volumes. An unsurprising outcome : journey time is more reliable in August.

4.5 The speed of traffic between pairs of traffic cameras is used to determine the distribution of journey times. There is no attempt in the research to measure average speeds. It is not known whether quicker journey times are indeed due to smoother traffic flows or higher top speeds when traffic volumes are less.

4.6 The strategy outlines the main actions TfL is currently pursuing. Most are welcome, but there will be concerns about some :

4.6.1 Rephasing of traffic light timings and the introduction of computer controlled signals is a continuing process. Members would want to be assured that additional vehicular traffic time is not at the expense of pedestrians, particularly vulnerable groups and where appropriate additional traffic time is allocated to buses.

4.6.2 The removal of traffic signals may mean more difficult crossing of road s for some, particularly vulnerable groups.

4.6.3 Officers have previously discussed with TfL the example of the junction of Tulse Hill and Norwood Road with the South Circular Road. Presently southbound buses appear to lose out compared to east and west bound South Circular Road traffic. This is one example, but generally we would want to be assured that any rephasing is transparent and that buses and pedestrians benefit appropriately from any changes to signal timing.

4.6.4 The lack of emphasis on the importance of continuing the work of prioritising the bus. The strategy talks too generally about improving the bus network.

5 Conclusions

5.1 TfL has made progress on specifying what it means by *smoothing the traffic flow* and this is welcome. Members will particularly welcome the definition of smoothing the traffic flow and the acknowledgement of the close link between smoother traffic and lower traffic volume.

5.2 However, there is clearly work to be done:

5.2.1 TfL need to be measuring average traffic speeds if the objective is more consistent speeds as opposed to consistent journey times that could mean stop start journeys with slow and fast journey speeds.

5.2.2 There is no indicator against which success can be measured.

5.2.3 TfL will need to be much more transparent as to who wins and who loses when it changes signal timings.

5.2.4 The role of bus priority has to be specifically acknowledged in the strategy.

6 Equalities and inclusion implications

6.1 Members would be concerned if this strategy led to a prioritising of vehicular traffic and took too little account of pedestrians, particularly from vulnerable groups.

7 Legal powers

7.1 Section 248 of the Greater London Authority Act 1999 places upon London TravelWatch (as the London Transport Users Committee) a duty to consider - and where it appears to the Committee to be desirable, to make recommendations with respect to - any matter affecting the functions of the Greater London Authority or Transport for London which relate to transport (other than of freight).

8 Financial implications

8.1 There are no financial consequences for London TravelWatch.

Developing a Smoothing Traffic Flow Strategy

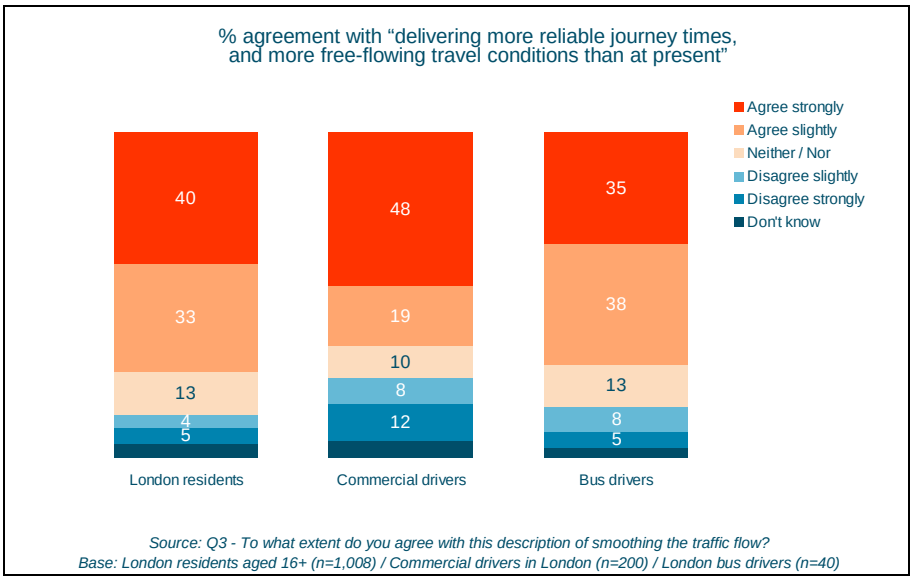
Introduction

This document sets out the Mayor's current thinking on Smoothing Traffic Flow in London. It builds on the principles outlined in '*Way to Go!'*, as well as the 'Managing the Road Network' section of the public consultation draft of the *Mayor's Transport Strategy*. It also takes account of stakeholder engagement with a wide variety of interested individuals and organisations across London.

Definition of Smoothing Traffic Flow

The Mayor's aim in smoothing traffic flow is to increase the reliability and predictability of journeys, including by tackling "stop-start" traffic conditions which increase emissions of harmful pollutants. The aim of this work is to improve conditions for existing road users (including cyclists and pedestrians), not to create additional capacity that would increase car journeys.

TfL carried out customer research in the summer of 2009 to understand the perspective of road users on this issue. Around three-quarters of both London residents and bus drivers agreed with the definition provided above, and two-thirds of commercial vehicle drivers agreed with it.



Wider Policy Framework

The Traffic Management Act of 2004 placed a 'Network Management Duty' on all Traffic Managers (of which each Highway Authority has one, including TfL), to promote the expeditious movement of people and goods.

Fulfilling this Duty, whilst coping with increased population and employment, and making no significant expansion to road capacity (in line with both the current, and new draft MTS), means a focus on extracting more from the existing road capacity. TfL's work to date has concentrated on those areas where we might be able to improve efficiency, either through our own management of the network (supply side

measures), or through influencing user choices (demand side measures). We have communicated these options to stakeholders under the following headings:

- ***Traffic Operations*** – including real time management, regulation of roadworks, signal timing reviews etc
- ***Fit for purpose road network*** – ensuring that the road network itself is kept in a good state of repair, and is appropriate to the demands made on it.
- ***Information*** – ensuring that road users have high quality information about their planned journey (including the best mode for their journey), and during their journey
- ***Mode shift*** – promoting the most efficient users of the road space (which often means walk, cycle, and bus). For freight, where change of mode is often not possible, there are similar efficiency measures around consolidation centres etc.

The public consultation draft of MTS also sets out other outcomes – in addition to the smoothing traffic flow indicator - for the road network, as follows:

- Killed and seriously injured
- State of repair of the road network (inc. carriageway, signals etc)
- Air quality (primarily PM10, NO2)
- CO2
- Physical accessibility of the network
- Perception of the urban realm
- Levels of crime
- Perceptions of safety
- Perception of journey experience
- Customer satisfaction of road users
- Public transport reliability
- Public transport capacity

In addition, in order to understand the issues behind journey time reliability, we will need to consider journey time itself – in certain circumstances, more reliable journeys can be achieved by slower, but smoother, traffic flows.

Stakeholder Engagement

Over the last 12 months, the Mayor has sought to develop a wide ranging debate about issues and priorities for smoothing traffic flow. TfL has engaged with a wide variety of organisational stakeholders, both directly and through an online forum (www.smoothingtrafficflow.org.uk), and pages on TfL's website which are accessible to the public. This strategy takes account of, and builds upon, this debate.

As a result of this engagement the Mayor has identified the following priorities for developing his smoothing traffic flow strategy:

- Understanding and agreeing a measureable outcome for smoothing traffic flow based around a measure of journey time reliability
- Setting out an 'ambition' (or target) to achieve, and a vision to inspire
- Developing a framework of actions around an agreed set of priorities to achieve this vision and deliver the target

The remainder of this document therefore sets out how these priorities might be delivered.

Developing a Measure for Smoothing Traffic Flow

The key measure for smoothing traffic is journey time reliability. This is of particular relevance to motorised traffic, where variations in journey time tend to be caused by congestion. Pedestrians and cyclists experience variability of a different kind – between different users (i.e. how physically fit or able they are), how quickly they choose to travel.

So the critical measure is around the reliability of journeys by motorised vehicles. Historically, although we have measured both traffic speed and flow volumes (with traffic speed being used as a proxy measure for levels of congestion), in contrast to the main public transport modes (bus, rail, underground etc), there has not previously been a reliable or easy to understand measure for road traffic journey time reliability.

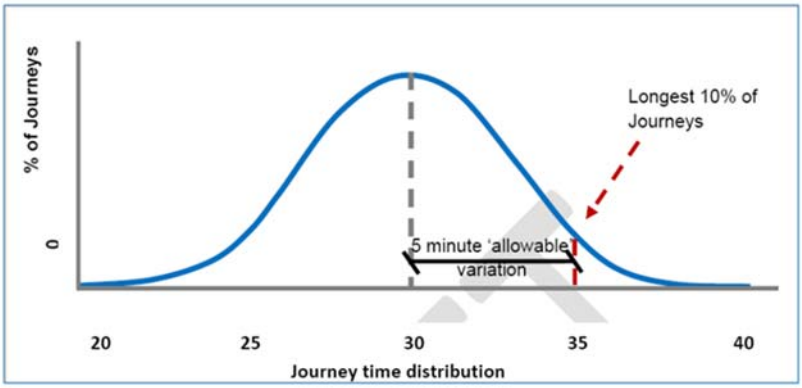
The new draft Mayor's Transport Strategy document (MTS) identifies the need for such a measure and defines it as:

> *'The Percentage of journeys completed within 5 minutes of a specified typical journey time'*

This 'specified typical journey time' has been assumed to equate to an average 30 minute journey, which is representative of all journeys across London.

This introduces the concept of an 'allowable' variation around a standard mean journey time for either the network as a whole, or any individual portion of it, allowing a numerical measure of the percentage of journeys competed 'on time' (i.e. reliably) across the network. This is illustrated in the diagram below.

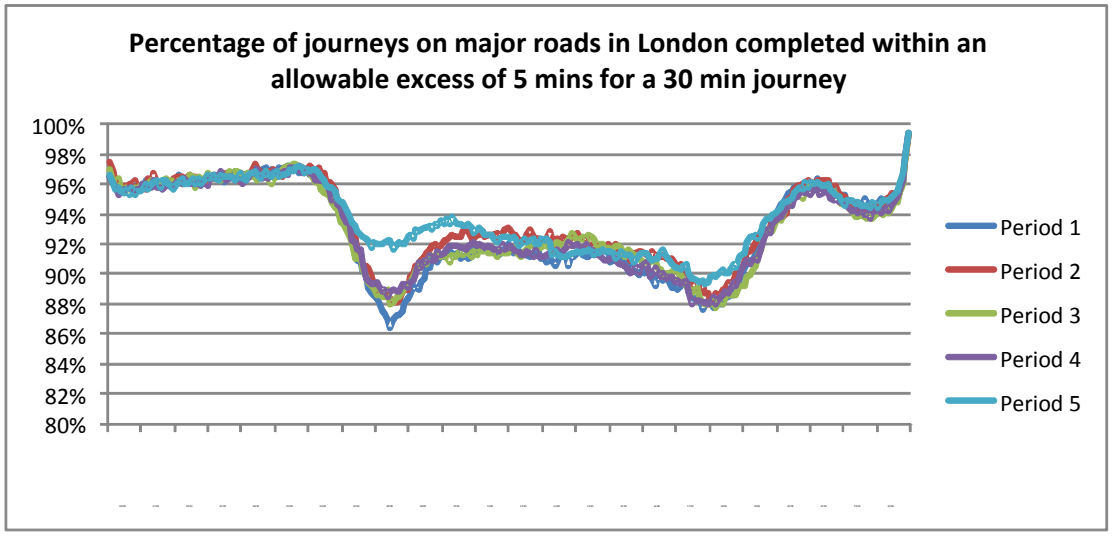
Average Journey Time and 'Allowable' Variation from the Mean



Assuming an 'allowable' daily variation in journey time of up to 5 minutes (i.e. trips completed within 5 minutes of the mean journey time are assumed to be on time). ie: if the network (or an individual route) can be managed more reliably such that 9 out of 10 journeys are completed within this time, we can consider it to be 90% reliable.

TfL is focusing the development of this indicator on the Transport for London Road Network (TLRN) – 580km of the most densely used strategic roads representing about 5% of the overall road length, but carrying over 30% of the total traffic in London. Using ANPR camera data across the TLRN, London Streets has been working to provide baseline and historic trend data to monitor and to set future targets for improving journey time reliability both on the TLRN as a whole, and on individual corridor routes across London. This is being undertaken by measuring the speed of traffic between sets of camera pairs – there are over 600 of these pairs on the TLRN – and factoring the journey times either up or down to a notional thirty minute journey. This gives distributions of journey time as the graph above shows.

This work shows that journey time reliability varies across the day (being at its most reliable in the early hours of the morning and least reliable in the AM peak period) and also by time of year. It is also closely relates to overall traffic volumes. The graph below shows this for the first five periods of 2009/10, with Period 5 (August) showing a significant improvement over Periods 1- 4 due to lower 'summer holiday' traffic volumes.



On radial routes into and out of central London, reliability also varies significantly between inbound and outbound directions. The MTS also defines a number of orbital and radial pan-London multi-modal transport corridors. The TLRN as a London-wide strategic road network closely correlates with these corridors (see below).

TLRN network and MTS London-wide corridors

As well as an overall London-wide measure, figures have now been produced for TLRN routes on all the major radial and orbital corridors highlighted in the MTS, and for central London. The table below shows these for each of the first five periods of 2009/10.

TLRN Journey Time Reliability Performance 2009/10
(7 – 10am peak Period)

	% Journey Time Reliability				
	P1	P2	P3	P4	P5
Area Wide Reliability (two way average)					
London Wide (all roads)	89.6	90.5	90.4	90.4	92.7
Central London	85.1	85.8	85.5	85.3	88.9
Inbound Radial Corridors					
A2 Corridor	86.1	84.3	85.9	84.8	89.1
A21 Corridor	88.4	84.0	90.8	92.4	96.8
A23 Corridor	84.3	86.8	86.9	87.1	91.1
A24 Corridor	86.5	85.2	87.9	93.7	96.5
A3 Corridor	85.2	87.7	89.7	91.6	92.4
A316 Corridor	80.2	85.3	81.8	85.9	89.5
A4 Corridor	83.1	86.2	86.8	89.1	97.8
A40 Corridor	79.5	82.9	81.1	82.3	81.5
A41 Corridor	81.4	84.4	81.1	88.0	92.9
A10 Corridor	83.8	89.5	90.2	89.6	90.2
A12 Corridor	89.5	88.5	88.1	83.9	89.9
A13 Corridor	89.2	86.5	87.0	85.4	85.1
Orbital Corridor					
A406 Corridor (clockwise)	91.3	93.7	90.9	91.8	94.9
A406 Corridor (anti-clockwise)	85.1	89.6	87.4	86.7	88.5
A205 Corridor (clockwise)	83.8	77.7	86.1	85.5	89.4
A205 Corridor (anti-clockwise)	86.6	86.1	88.5	88.4	94.3

Work is still on-going with this dataset. It would be premature, at this stage, to consider what, if any, targets or specific ambitions could or should be set, before the following are fully understood:

- A full 12 months of data across the network, which should be available soon
- A comparison of the dataset with other sources such as iBus data and SCOOT data to ensure consistency
- Some piloting work to ensure that we can influence the measure by the interventions described below: if these cannot noticeably affect the target, it is unlikely that the success of any intervention can be described
- The best time of day measure to produce – should we use AM peak, PM peak, or both? Weekday or full week figures? One way of understanding this will be to engage with road users on what is most helpful for them.

Actions to Improve Journey Time Reliability

The draft MTS sets out a series of policy proposals to improve JTR as follows:

- Maximising the efficient and reliable operation of the road network
- Minimising the impact of planned interventions on the road network with the potential to disrupt traffic flows
- Minimising disruption from unplanned events (accidents, emergencies, etc) in 'real-time' as they occur and return the network quickly and efficiently to its planned steady state operation as soon as possible
- Achieving modal shift away from car based traffic movements towards more sustainable modes to reduce traffic growth pressures on the network
- Where feasible, and where there is an overall congestion reduction and local economic benefit, developing the road network
- Maintaining road network assets in a good state of repair

The main actions that TfL is currently pursuing under each of these headings can be summarised as follows:

Maximising the efficient and reliable operation of the road network

- Developing a better understanding of the performance of the network to identify, pinch-points, valves and hot spots, targeting interventions to improve journey time reliability for all users.
- Mayoral SCOOT programme to introduce Split Cycle Offset Optimisation Technique (SCOOT) technology at an additional 1000 sets of traffic signals by 2015/16, which, under normal flow conditions, could deliver a 12% reduction in delay and an 8% reduction in stops (but in abnormal conditions, i.e. during an incident, up to a 29% reduction in delay and up to a 25% reduction in stops).
- Review of traffic signal timings to improve the flow of traffic (including pedestrians) along corridors or between links at a rate of 1000 sites per year over the next 6 years to optimise the balance of traffic phases
- Development of pedestrian countdown technology to maximise efficiency of operation for pedestrians and vehicles, with the intention of carrying out off-street trials before end of year 2009 and thereafter, subject to the outcome of those trials, on-street trials at carefully selected junctions
- Possible removal of traffic signals, where safe and practical and where it aids traffic flow
- Identifying the impacts of new developments on the road network and ensuring that private sector developer contributions include measures to smooth traffic flow where required.
- Improving/simplifying road network (e.g. parking/loading/stopping/bus lane hours etc)
- Allowing motorcycles in the majority of TfL-controlled bus lanes on an 18 month trial basis, from 5 January 2009
- Engaging with Freight Transport Association, Noise Abatement Society and relevant boroughs over recent trials with businesses to identify and promote good practice in relation to use of night time servicing

Minimising the impact of planned interventions on the road network

- Developing a better understanding of the cause/effect nature and impact of planned interventions, through the development of modelling technology, to identify and target appropriate measures to mitigate disruption caused by such events
- Developing Londonworks to improve coordination of roadworks between different highway authorities and utilities across London
- Delivering the London Permit Scheme to enable highway authorities to better coordinate, manage and control the timing and implementation of streetworks
- Improving enforcement work to minimise disruption form planned roadworks
- Talking with DfT about further legislative powers to incentivise reductions in the duration of roadworks (e.g. lane rental)
- Develop workathons/extended hours and 24/7 working/plating etc
- Improving engagement with stakeholders impacted by planned roadworks

Minimising disruption from unplanned events

- Developing a better understanding of the cause/effect nature and impact of unplanned events on the network, through the development of real-time traffic modelling capability, to improve the effectiveness of incident responses
- Deploying Image Recognition Incident Detection (IRID) camera technology, which automatically detects traffic congestion as it builds up, to enable faster response to incidents and congestion
- Delivering better integration of police, traffic and bus operations through a combined Surface Transport and Traffic Control Centre
- Improving enforcement and incident response 'on the ground', targeting key locations where incidents have the most effect on overall network reliability
- Improving real-time public information to enable motorists to avoid disruption

Achieving Modal Shift

MTS highlights a range of activities being pursued to promote better user information, and promote mode shift, such as:

- A range of proposals to support walking, including public realm improvements, and information improvements such as 'Legible London'
- A number of schemes to promote cycling, including superhighways, and a hire scheme in central London
- Continuing to improve the bus network
- Promoting smarter travel, including through reducing the need to travel, and better information to highlight the best mode for the trip.
- Better information to road users, including developing the TfL Journey Planner to include a road journey planning module.
- In addition to these more generalised policies on promoting more sustainable modes, TfL will target modal shift work (e.g. smarter travel initiatives) at key locations on the network where reductions in traffic flow volumes can deliver the most benefit in terms of road network reliability

Development of the Network

- Where a strong economic cases exists and environmental benefits can be mitigated (e.g. a new East Thames road crossing) pursing targeted improvements to the road network to improve overall reliability

Maintaining Road Network Assets

- Continuing to maintain all road network assets (eg road surfaces, traffic signals equipment, tunnel systems etc) to maximise availability and network resilience, and minimise disruption from maintenance activities and equipment failures.

Developing Smoothing Traffic Flow on the Strategic Road Network

Although TfL's initial focus will be on improving journey time reliability on the TLRN, the policies and proposals in the MTS apply to all of London's roads – beyond the TLRN, there is a large network of strategically significant roads controlled by London Boroughs. The Mayor will be expecting TfL to work in partnership with the Boroughs to implement them on the wider Strategic Road Network (SRN). Therefore, engagement with the boroughs on the measure we are proposing will be important.

The new draft MTS identifies this wider network in the sub-regional transport geography section. In developing the proposed Sub-regional transport plans that will follow on from the publication of the MTS in spring 2010, TfL will work in partnership with the Boroughs to implement the approach to smoothing traffic flow outlined in this document across the wider SRN. TfL's role is likely to include (but not necessarily be limited to):

- Providing ANPR derived JTR measurement data
- Undertaking and/or supporting analysis of the wider SRN to identify cost effective actions and interventions to maximise the effectiveness of the network
- In its strategic Traffic Manager role under the 2004 Traffic Management Act coordinating network development and planned interventions across the wider SRN to minimise disruption
- Monitoring and managing traffic in real time to mitigate as quickly and effectively as possible the impact of unplanned events on the network.

Note that although smoothing traffic flow is a key MTS outcome, there is currently no proposed indicator for borough LIPs relating to this outcome. However, it very clearly relates to the shared Network Management Duty; and TfL is keen to work with the boroughs to smooth traffic flow on this basis, using LIPS money and/or other sources of funding.

Board 30.6.09

Secretariat memorandum

Author : Vincent Stops

Agenda item : 8
LTW 314
Drafted 15.6.09

Smoothing the traffic

1 Purpose of report

1.1 To brief the Board on the Mayor's policy of 'Smoothing Traffic Flow'

2 Background

2.1 One of the key transport pledges in Mayor Johnson's 2008 transport manifesto, Getting Londoners Moving, was to 'smooth traffic flow' using measures such as:

> "re-phasing traffic lights, allowing motorcycles in bus lanes and cracking down on utility companies who dig up the roads".

2.2 The Mayor was responding, in part, to public disquiet at the deliberate policy of Transport for London (TfL) of extending the pedestrian green man phase of traffic light signals and that more should be done to reduce the delays caused by the utilities road works.

2.3 Members should note that at the time when there was heightened publicity around extending the pedestrian green man phase of traffic light signals the Board investigated the matter. We heard from TfL that this was generally being done in a planned way to bring signal light timings up to standards set by the DfT. This process continues.

2.4 The Mayor also stated in his manifesto that:

> "I will get traffic flowing smoothly. This will make commuters' lives easier, it will also help to reduce emissions and make buses more reliable – which will encourage long term modal shift."

2.5 Since May 2008 TfL have set about implementing the Mayor's manifesto commitment in various ways: traffic lights have been re phased; there is to be greater use of intelligent traffic lights; the motorcycles in bus lane trial has commenced; further agreements have been made with the utility companies and the Government is being pressed to bring forward the regulations (part of the Transport Management Act 2004) enabling the permitting of utilities works.

2.6 Members should note that we too have written to ministers at the DfT pressing them to bring forward the required Traffic Management Act 2004 regulations to allow TfL to regulate road works by utilities through a system of permits..

2.7 In parallel with these initiatives TfL wrote to stakeholders, including London TravelWatch, in January 2009 asking for their views on 'smoothing traffic flow' and proposing workshops culminating in a conference in the summer to discuss the issues around this concept. This proposal appears to have been diluted to now be a website initiative aimed at stakeholders.

2.8 TfL has also been developing its ideas on 'smoothing traffic flow' and have four work streams:

2.8.1 Improve efficiency of the operation of network:

- Signal timing review
- Pedestrian Countdown
- Intelligent traffic light signals
- Enforcement
- Works permit scheme
- Incident management

2.8.2 Fit for purpose road network:

- State of good repair
- Road space allocation
- Integrated schemes
- Managing bottlenecks
- Junction improvements

2.8.3 Help users make informed choices:

- Variable message signs
- Real time information
- Satellite navigation systems and interfaces
- Journey Planner

2.8.4 Encourage shift to the most efficient modes:

- Bus services
- Marketing / info on advantages of bus, walk, cycle
- Cycle training / safety campaigns
- Road safety campaigns

3 Discussion

3.1 Prior to the election of Mayor Johnson urban roads policy was clear, if difficult to deliver due to conflicting demands for road space. Transport planners suggested that the challenge of delivering better transport in congested urban areas would be met by a combination of improving public transport, cycling and walking and restraining the private car using parking controls and / or road pricing. This would be achieved by a whole raft of measures, but importantly reallocating road space to the more space efficient modes – bus, cycle and walk, parking control and congestion charging. Latterly, due to the political

difficulties of introducing road user pricing there has been increased emphasis on ‘soft’ measures to encourage modal shift.

3.2 The election of Mayor Johnson challenged this settled view with a much greater emphasis on facilitating the movement of all forms of transport. Thus it is now proposed that through a series of measures (notably the re-phasing of traffic light signals) more network capacity will allow more reliable journey times for all modes and there will also be additional environmental benefits – less pollution, CO_2 emissions.

3.3 However, the difficulty with this proposition (outside of areas where road pricing applies) is the phenomena of ‘induced’ traffic – It is widely accepted that if there is an increase in network capacity this will just encourage more journeys and the network will, in time, become as congested as before the intervention.

3.4 Paragraph 2.8 above describes how TfL are widening the scope of smoothing traffic flow beyond just re-phasing traffic lights, allowing motorcycles in bus lanes and cracking down on utility companies who dig up the roads. This is to be welcomed, but there remains the concern that the balance of policies needed to tackle London’s transport problems is now skewed towards those of increasing road network capacity rather than modal switch, reallocating road space to the space efficient modes and restraining the private car.

4 Equalities and inclusion implications

4.1 The concept of smoothing traffic flow will have an impact on all transport users and has no specific equalities and inclusion implications.

5 Legal powers

5.1 Section 248 of the Greater London Authority Act 1999 places upon London TravelWatch (as the London Transport Users Committee) a duty to consider - and where it appears to the Committee to be desirable, to make recommendations with respect to - any matter affecting the functions of the Greater London Authority or Transport for London which relate to transport (other than of freight).

6 Financial implications

6.1 This report has no specific financial consequences for London TravelWatch.

7 Recommendations

7.1 None – the report is intended for information only.