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## OPPORTUNITIES AND OPTIONS FOR TRANSPORT POLICY

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### Abstract

UK transport policy is entering arguably its most challenging period. The 12 years since 1997 has seen record levels of investment in local and national transport systems. There have been notable policy innovations such as the London Congestion Charge and requirements for nationwide School Travel Plans. There have been some successful policy outcomes such as increased rail patronage, serious accident reductions and improved air quality in many places and yet the problems of congestion, climate change, inclusion, obesity and equality are more severe now than at any previous time. The period from 2010 will be characterised by significant and sustained cuts in public expenditure and transport cannot expect to escape from these. It follows that business as usual is not actually an option - so, what are the policy options for transport which parties seeking to govern need to consider?

This paper is a think piece developed through collaboration between academics across a range of policy areas including governance, behavioural and social trends, energy and the environment, social equity and equal opportunities, public acceptability and freight. The paper sets out an analysis of the problems using the Driving Forces, State, Response framework. The Response comprises an assessment of five policies which should be started, five which should be stopped and four which should be applied more intensively. The selections demonstrate both strengths and weaknesses in the current policy set and suggest the need for a much broader debate about where next if the next decade is not to be a cut-price 'business as usual' approach which takes the UK further away from a sustainable transport system.

### 1. Introduction

The next General Election is due by May 2010. Whilst it seems highly fanciful to suggest that transport will grab more than a few minutes headlines on the campaign trail the next government is going to be faced with some very difficult policy choices within transport on taking power. This paper is intended to spark debate about the nature of the transport policy problem which future governments will face. It is organised using a Driving Forces, State, Response framework similar to that adopted by the UN Commission on Sustainable Development. Section 2 (Driving Forces) looks at the underlying drivers of demand for travel

and how these are incorporated in policy making. Section 3 (State) considers the comparative importance of key policy objectives and discusses how these have changed over the previous decade. The next three sections (Response) present a series of short analyses of transport policies which, in the light of the analysis in Sections 2 and 3 the authors feel should be stopped (Section 4), started (Section 5) and applied more intensively (Section 6). Some conclusions are drawn in Section 7.

## 2. Driving Forces

The DfT makes use of its National Transport Model (NTM) to forecast future levels of traffic. It notes that “key drivers of traffic growth in the NTM are changes in income, employment, population and travel costs” (DfT, 2008a). Current mid-range forecasts are that traffic will be 31% higher in 2025 and car ownership 33% higher/capita than in 2003. Similar drivers support the future forecast growth in aviation (Pearce, 2008). Forecasting does acknowledge some uncertainty through employment of sensitivity analysis which adjusts inputs to the modelling to produce ‘high’ and ‘low’ (and indeed now ‘low low’) forecasts around a central forecast thus creating a ‘forecast fan’. However, such a fan rather implies a certainty that the emergent trend in traffic will reside within that range. Bayliss et al. (2008) identify that actual traffic levels (up to 2006) have been well below the mid-range forecasts provided by both the 1989 and 1997 National Road Traffic Forecasts. Of course, these driving forces are both evidence based and important (and if we believe current population projections – potentially critical) but how certain can we be that these historic relationships will hold true in future decades? Traffic growth is already decoupling from economic growth (DfT, 2006) but how far might this go? What impact will continuing volatility in the oil market have on lifestyle choices? Will future generations cease to see congestion as the major economic drain that it is conceptualised as today (Goodwin and Lyons, 2009)?

An alternative approach to inform policymaking decisions is scenario planning. The Foresight Programme recently examined transport and employed scenario planning to project into the future. Two ‘axes of uncertainty’ (acceptance of or resistance to the role of technology (social attitudes) and high through to low impact transport) framed the creation of a set of four scenarios depicting very different futures (OST, 2006). The scenario planning exercise was not intended to allow the emergence of a single vision for the future but rather to challenge policymakers to consider how to formulate policies that can be robust in the face of such future uncertainty and thus positively contribute to society’s evolution.

While the NTM forecasting and the scenario planning exercise are serving somewhat different purposes, it is perhaps significant that the key ‘driving forces’ in the two approaches are rather different. In the case of the latter notably social attitudes are seen as influential in shaping society’s engagement with technological opportunities in the face of environmental impacts that will likely force a direction of response from policymakers and society. The NTM forecasting rather implies societal developments of significance to transport are ‘external’ to policy. Meanwhile, the scenario planning, we would advocate, underlines the role that policy can play in working with attitudes, opportunities and impacts to exert positive influence on the type of society that is developing and the nature of the transport system that thus co-evolves with it.

The information age is unfolding around us far more rapidly than the motor age did before it. Consider that the Google.com web domain was only registered in 1997. Only a few years earlier commentators had said “there is no natural way for grocery teleshopping to evolve alongside superstore retailing” (Hepworth and Ducatel, 1992) and yet today online grocery shopping is very much making its presence felt. In 1998 only 9% of households had access to the Internet. By 2007 61% had Internet access with 52% having broadband access. We have passed the point where there are more mobile phones than people in the UK. According to idc.com 84 billion emails/day were being sent globally in 2006 (33 billion being spam) up from 10 billion in 2000. We suggest that a major driving force for the future is that information and communications technologies (ICTs) are weakening the temporal and spatial fixity of participation in activities. Since much if not all travel is derived from such participation, then it follows that ICTs will impact on travel. ICTs can impact upon travel in a variety of ways including substituting for trips taking place, stimulating more trips taking place and enriching the experience of travel itself through travel time use. ICTs allow us to do

things differently. What is uncertain is how such opportunity permeates into society and everyday social practices to redefine norms of behaviour. The question for policymakers is whether they should be inactive, reactive or proactive in policy response.

Crucial to our beliefs about how to plan for the future is the relationship between technological fix and behaviour change – a significant ‘axis of uncertainty’. Whilst the recent King Review and Low Carbon strategy (DfT, 2009a) have a strong emphasis on technological fixes relative to behaviour change we suggest that such a view is at least worth challenging. Technology fixes have a long development period and often appear to remain elusively ‘only 5-10 years away’; meanwhile behaviour change is a strong natural force running through society and individuals as they move through the life course (e.g. changing locations of employment and residence) - with appropriate and sufficiently robust policy levers this behaviour change could be positively influenced for some immediately and substantially. Even if an engine and clean energy revolution were to solve climate emissions from transport such a revolution would do nothing for the congestion, safety or social inclusion agendas. There is much to be understood about the attitudes of the public both in their relationship to behaviour (and can potentially govern how individuals act and indeed how they respond to policy) and how they act as a constraint on policy formulation if the right balance is to be struck.

Our main conclusion on driving forces is not to throw away that which we have learnt from previous decades about the importance of price, quality and income. It is instead to ask the next governments to consider the extent to which these assumptions might change as attitudes, technologies and external factors change and to consider whether planning for a continuation of these trends is consistent with the longer-term goals of policy. The next section presents a case for change based on an assessment of the current policy challenges and the impotence of recent policies in tackling most of these.

### 3. State

Review upon review of national policy continues to draw out the same key issues which define the pressures on the transport system. Delivering a Sustainable Transport System highlights these as supporting national economic competitiveness and growth, by delivering reliable and efficient transport networks; reducing transport’s emissions of carbon dioxide and other greenhouse gases; better safety, security and health; greater equality of opportunity; improved quality of life and a healthier natural environment (DfT, 2008b, p7).

These issues must be considered within the context of the recession which has created a particularly intense set of fiscal pressures on the transport sector which the next two governments will need to manage. The Treasury forecasts that the overall impact of the recession will be increases in GDP some 9% lower than it would otherwise have been by 2011. This has two important impacts for transport. First, traffic levels are still below their 2007 peak with HGV traffic at its lowest level since 2003 (DfT, 2009b). As would be anticipated, this drop in traffic has contributed to improvements in reliability on the inter-urban road network and lower congestion levels in the largest urban areas (albeit small). Whilst it is anticipated that traffic levels will recover it has, nonetheless, removed some pressures on short-term congestion mitigation. The second impact will be on future budgets as public expenditure is cut back following the fiscal stimulus. Budget 2009 assumes that net public investment falls from 3.1% of GDP in 2009/10 to 2.5% in 2010/11 to 1.25% in 2013/14 (HM Treasury, 2009). There will be particular pressures on capital spending within Government Departments and this is a particular concern for DfT which, at 55%, has a much higher than average (13%) proportion of capital spend.

It seems inevitable that there will be real cuts in spending in transport under any future spending scenario (IFS, 2009). How severe these cuts are depends on political priorities for protecting spend in other areas but it is not unrealistic to assume that there could be cuts in capital expenditure of up to 20% and revenue funding of half of this. Other sources of income used to support local transport including revenue support from the Department of Communities and Local Government and Council Tax. According to the Local Government Association (2009) local authorities have experienced a £4bn deficit in income over the last two years. Two reasons put forward for the deficit have been the downturn in the property

market and low interest rates, since this has impacted on the return on their cash deposits. Fees from parking and income from planning obligations have also fallen and so the demands placed on local transport budgets will tighten further. Spending on transport may be similar to levels prior to the 10 Year Plan for Transport.

This will pose further challenges to the equality and inclusion agenda as lower income groups are far more reliant on locally subsidised public transport than higher income groups. Whilst some public transport corridors into major cities continue to perform well, there are increasing requirements for subsidy to protect evening and weekend services and services to estates and more rural settings. The revenue pressures on local authorities challenge the maintenance of even the current networks.

Whilst road traffic accidents have long been recognised as a major health issue (and one which costs the economy around £15bn a year) this is being overtaken by obesity as a serious and growing health risk. The NHS states that “Obesity is one of the biggest health challenges we face... Almost 1 in 4 adults in England are currently obese, and if we carry on as we are by 2050, 9 in 10 adults will be overweight or obese. The cost of overweight and obese individuals to the NHS is estimated to be £4.2 billion and is forecasted to more than double by 2050. The cost to the wider economy is £16 billion, and this is predicted to rise to £50 billion per year by 2050 if left unchecked.” (HM Government, 2009a). Whilst obesity is a complex and multi-faceted problem to tackle, building physical activity into lifestyles is seen as a key part of the agenda putting greater emphasis on initiatives to promote active travel and to provide accessibility to key leisure and sporting opportunities.

In recent years, climate change has been variously described as the greatest challenge and highest priority facing the Government. This cannot yet be said to have led to transformative policy initiatives in the transport or any other sectors which do justice to the scientific consensus on the scale and urgency of the problem. Until very recently, projections of carbon from transport have merely demonstrated a stabilisation of emissions towards 2020, rather than contributing to overall targets (DfT 2008c). However, the Climate Change Act of 2008 has introduced carbon budgets which set limits on the total greenhouse gas emissions allowed from the UK in successive five year periods. This requires a 34% cut on 1990 levels by 2020 setting the trajectory to an 80% reduction by 2050. These targets cannot be met in the medium or long term without the transport sector pulling its weight.

In line with these targets, the Government is now piloting a system of individual Departmental budgets. The DfT is responsible for 18% of the carbon budget to be achieved in 2018-22 or, ‘the equivalent to around 4 million people choosing to cycle five miles to work instead of taking the car’ (HM Government 2009b). However, the twin pressures of carbon reduction and the pursuit of energy resilience have galvanised a new conventional wisdom for the ‘dash to electricity’ (Anable et al. 2009). The pressure is on to accelerate the uptake of electric vehicles and associated infrastructure facilitated by massive (decarbonised) electrification of our energy system. There are, however, multiple pathways to a lower carbon economy and the key trade off will be the speed with which travel demand could be reduced versus the decarbonisation of the energy supply. Evidence suggests that reducing travel demand may be a more cost effective way to reduce carbon whilst at the same time limiting exposure to energy shocks and the uncertainties involved in technological development (*Ibid.*).

The rush to a low carbon vehicle future has an important side-effect which will need to be addressed over the next decade. Currently vehicle tax revenue is obtained from what Potter and Parkhurst (2005) label as the “three crucial points in the life-cycle use of cars”, namely the initial purchase of a vehicle, tax on ownership, through the annual registration tax and the tax on the use of vehicles, in the form of fuel and parking charges. This life cycle however is likely to be unsustainable since as stated by the Committee on Climate Change (2008) there is likely to be reduced fuel duty revenue as a result of improved fuel efficiency in the order of £2.5bn. In addition, the Committee expect there to be a reduction in VED revenue as a result of a change in behaviour with respect to buying a car. Over time they foresee the introduction of new technologies, most notably electric vehicles and plug-in hybrids, and a move to buying medium rather than large cars, leading to a £1.5bn reduction in VED.

A further pressure which is emerging is that of public acceptability. Almost a decade on from the Fuel Duty Protests the high price of oil and high levels of fuel duty in the UK continue to provide a tense backdrop against which to promote changes in transport taxation. Whilst changes in VED to an emissions-based system were uncontroversial, recent amendments which penalised the owners of older vehicles (and therefore generally lower income car owners) were received with outcry and ultimately modified. Whilst London and Stockholm stand out as two success stories for congestion charging Edinburgh and, more recently Manchester have received resounding 'no' votes on their proposed schemes, the latter in spite of a multi-billion pound proposed investment package. Part of this tension is borne out of the fact that motorists already pay more in tax than is spent on transport (HoC, 2009). Work by Bonsall et al. (2004) suggests that the public also see different, more local, priorities to those discussed above. The longer-term and higher level agendas do not necessarily match with the priorities of the majority of road users. Delivering a more radical change agenda will require a much better understanding of how to engage the public with the various behaviour change initiatives which may be required.

In the light of these key pressures it is instructive to review the state of the transport system using some headline metrics and to consider how much it has changed in the past decade. One purpose of the analysis is to provide a reality check on how much change has been achieved given the large increases in expenditure on transport over this period. The key findings are presented in Table 1. The table includes the authors' own assessment of the direction of change using a simple traffic light system, whether this change is likely to reduce (green) or increase (red) the pressures described above (amber being neutral). Such an analysis has some important caveats. First, the money (around £12-£13bn/year) could have been spent differently and to better effect (see Docherty and Shaw, 2009 for a detailed critique of this). Secondly, some indicators (e.g. growth in car traffic) have benefits and disbenefits to different objectives and so the scoring is an overall assessment rather than a definitive statement that there is nothing positive about such trends. Finally, the past is not necessarily a guide to the future as new technologies and policies are adopted. Nonetheless, given the more restricted financial realities for future governments it indicates the nature of the challenge.

The analysis suggests that the past decade has been a decade of drift in UK transport policy (see also Docherty and Shaw, 2009). Notable achievements have been made such as the improvements to road safety, the introduction of congestion charging in London, the uptake of School and Workplace Travel plans and reforms to company car taxation and Vehicle Excise Duty (which are more in line with the polluter pays principle). The historic backlog of underinvestment in the maintenance of road and rail assets has been tackled – although the scale of this challenge has been illuminating.

Whilst significant increases have been achieved in rail passenger numbers this has been at significant cost to the fare and the tax payer. Bus journeys in London have also risen with additional subsidy and the decline in some areas outside London appears to have slowed, halted or in some case reversed – although again at some cost to the public purse. The future still promises a fall in the real-terms costs of motoring against rises in the real terms cost of public transport (due in part to rising staff, pension and health and safety costs but also as the government set out to reduce its % subsidy of the rail industry to 25%).

In the light of the financial cut backs which are anticipated, we predict that a business as usual projection of transport policy will lead to reduced capital expenditure programmes, reduced subsidy for public transport and cutbacks in routine maintenance (potentially undoing many of the gains of the past decade). The gap between the costs of private motoring and public transport will rise yet further with associated negative impacts on equity. Equally, traffic growth will resume, albeit at lower levels than anticipated in current forecasts and congestion will creep back above the recent peak of 2007. There will be a more limited scope to invest in capacity enhancement and this will lead to the growth in congestion pinch points around the network, particularly towards the latter part of the decade. Equally, investment in major public realm projects will be threatened due to the difficulty of identifying the precise nature of their benefits.

**Table 1: Changes in UK Transport System 1998-2008**

| Indicator                           | Units                     | 1998  | 2008               | Change | Comment  |
|-------------------------------------|---------------------------|-------|--------------------|--------|--|
| Car Traffic                         | Bn veh-km                 | 370.6 | 404.1 <sup>a</sup> | ↑      | But rate of growth slowed.   |
| LGV and HGV traffic                 | Bn veh-km                 | 78.5  | 97.6 <sup>a</sup>  | ↑      | Main growth in LGV class   |
| Local Bus (exc. London)             | Millions                  | 3149  | 3074               | ~      | Boosted by concessionary fares                                     |
| Local Bus (London)                  | Millions                  | 1281  | 2090               | ↑      | Frequency, fares and congestion charge                             |
| Rail Journeys                       | Bn-pass-km                | 34.7  | 46.2               | ↑      | Growth not forecast at privatisation                               |
| Walking                             | Trips/person <sup>b</sup> | 292   | 245                | ↓      | Av. trip distance approx. constant                                 |
| Cycling                             | Trips/person <sup>b</sup> | 18    | 14                 | ↓      | Stabilised with some increases                                     |
| CO <sub>2</sub> emissions road      | MtCO <sub>2</sub>         | 116.0 | 121.6 <sup>a</sup> | ↑      | HGVs and vans (cars stable)  |
| CO <sub>2</sub> emissions non-road  | MtCO <sub>2</sub>         | 7.3   | 9.7 <sup>a</sup>   | ↑      | Excludes international aviation                                    |
| Air Quality                         | Authorities with AQMA     | ?     | 235                | ~      | Reductions in toxic emissions but traffic based exceedences remain |
| Killed & Seriously Injured          | 000s                      | 44.2  | 28.6               | ↓      | Continued success of road safety strategy                          |
| All casualties                      | 000s                      | 325.2 | 230.9              | ↓      |  |
| Condition of road network           | Defects <sup>c</sup>      | -     | -                  | ↓      | Strongly related to investment levels                              |
| Motor Vehicles Licensed             | Million                   | 27.0  | 34.0               | ↑      | Utilisation rate dropped   |
| Cars under 1200cc                   | %                         | 18.2  | 11.6               | ↓      | Upsizing of purchases offsets some of efficiency gains             |
| Cars over 2000cc                    | %                         | 8.5   | 13.7               | ↑      |  |
| Rail Costs (05/06 prices)           | £Bn                       | 7     | 12                 | ↑      |  |
| Rail farebox proportion             | %                         | 65    | 49                 | ↓      | Difficult to sustain   |
| Bus Subsidy <sup>d</sup> (07prices) | £M                        | 812   | 1994               | ↑      | Pressure grows as car use rises                                    |
| Income VED                          | £Bn                       | 4.5   | 5.2                | ↑      |  |
| Income Fuel Duty                    | £Bn                       | 19    | 23.2               | ↑      |  |

<sup>a</sup> figures are last confirmed figures from 2007

<sup>b</sup> figures are changes 1995-97 to 2005

<sup>c</sup> changes in measurement approaches make summarising difficult but this applies across all road categories

<sup>d</sup> Concessionary fare support and local subsidy only

The current low carbon transport strategy forecasts that technological improvements, taxation reforms and developments in renewable fuels will lead to cuts in carbon emissions with reductions of around 10% achievable over the coming decade. It remains to be seen whether the financial capital and consumer appetite for new technology vehicles will emerge in the fragile economic recovery period and whether these gains will therefore be achieved. We nonetheless consider them to be worthwhile if cautious in their nature.

In summary, business as usual will produce 10 years of managed decline in the quality and level of service of our major infrastructures. The transport system will become more car dominated and is likely to hold greater inequities to those remaining reliant on the public transport system. Whilst transport's contribution to atmospheric emissions will reduce marginally, this will not produce any noticeable improvement to quality of life, nor will it help to promote more active lifestyles. Although this presents a bleak picture we do not see this outcome as a given. The current financial crisis may force the next government to address long-held inconsistencies in policy which undermine the pathway to a more sustainable

future for transportation. The next sections set out some proposals for change which are consistent with meeting the policy pressures which have been identified.

#### 4. Response – Policies to Stop

##### 4.1 Vehicle Scrappage Schemes

The vehicle scrappage scheme (managed by BERR not DfT) is a £400M scheme announced in response to the drastic fall in new car sales in 2009. People trading in a vehicle over 10 years old receive a £1000 subsidy from government which is matched by the manufacturers (although the extent to which this is additional to rather than a substitute for other offers remains debatable). The SMMT's figures suggest that, to September 2009, 200000 existing or banked orders had been placed. 70% of purchases have been brought forward and are therefore "new sales". This does however mean that £60m has been spent on subsidising purchases that would in any case have happened. They estimate that, as a result of consumers purchasing lower emitting vehicles a total lifecycle saving of 2.7MTonnes CO<sub>2</sub> will be made. A rough calculation suggests that this is at a cost of around £75 per tonne of carbon compared with the 2007 shadow price of £25/tonne. This is not a cost-effective policy and this should come as no surprise.

An evaluation of scrappage schemes by the World Energy Council (available before the scheme was introduced) concludes that cash-for-replacement schemes are not very cost effective, particularly compared with cash for scrapping (WEC, 2008). By constraining consumers to purchase a new car they exclude *"lower-income groups who cannot afford to purchase new cars even with an incentive bonus. This makes the schemes somewhat inequitable, but more importantly, prevents them from attracting many of the oldest cars in the fleet, used typically by lower-income families intensively, as their principal means of transport. These schemes, therefore, have not properly selected the vehicles to be retired, leaving in use a large proportion of the 'gross emitters'. Moreover, higher payments are necessary to influence the decision to purchase a new car, rather than simply scrapping a car (which might be replaced with a used car or not replaced at all)...they do not compare favourably with other alternative policy tools on purely environmental grounds."* (Chapter 3.7). Whilst this policy may, on the surface, be consistent with the carbon reduction agenda of DASTS, it is bad value for money and not an equitable policy. It should be stopped.

##### 4.2 High Speed Rail

Preston (2009) concludes that in any assessment of a new HSR line or network in the UK, the dominant benefits are time savings to HSR users and the net revenue to the rail industry. Although strongly marketed as an environmentally preferable option to expanding air travel, the environmental benefits are marginal and are highly dependent on assumptions made about embedded emissions, the carbon intensity of the grid, mode switching and what will happen with the existing rail network. Preston concludes that whilst a scheme would be operationally profitable it would require public support of between £17Bn and £27Bn. The Benefit:Cost ratios of all but the most expansive of network options also appear marginal (typically around 1.5) and certainly below those which the DfT suggest schemes require for consideration. Eddington was strongly against the notion of large proposals of this nature when many more proposals of much greater benefit could be delivered.

We also note that HSR will tend to encourage people to travel over longer distances more often and will thus serve to both induce travel demand and encourage the dispersion of activities over time and space. Low income populations have the least to benefit and the most to lose from this, in that they usually cannot afford to participate in the journey time saving benefits due to the high cost of fares and/or the incompatible routing of such services in relation to their journey needs. They are also least able to adapt their own behaviours to meet the escalating need to travel just to maintain a basic lifestyle that is generated by the use of ever faster modes. In addition, high speed travel tends to erode the commercial viability of slower modes leaving them vulnerable and reliant on subsidies, as we have seen with the bus industry. It appears that the main arguments for HSR are economic – yet even these appear weak or uncertain. Other actions could generate a better return with greater environmental and equity benefits and, particularly given the vast capital investment required HSR proposals should be shelved.



#### 4.3 Hard Shoulder Running

The Highways Agency (HA) with responsibility for the motorway network has a remit to improve journey times, journey time reliability and motorway safety. In September 2006 it piloted an Active Traffic Management scheme on the M42 which centred upon the application of hard shoulder running (HaShR). The scheme tackles recurrent congestion but also event-based (unanticipated) congestion. The HA (2007) and in turn The Transport Secretary hailed the pilot a success with a subsequent announcement that it would be extended to other parts of the network (GNN, 2007). While HaShR may in the short term be an effective means of managing traffic it could in the longer term have the unintended and undesirable effect of encouraging traffic growth and emissions – in short, good traffic management may equal bad demand management. What lessons can be learnt from the Netherlands where HaShR is already applied? (if attempts have been made there to examine the extent of consequences) (RoSPA, 2004). Does HaShR generate more car traffic? Does it abstract existing traffic from other routes? Does it abstract demand from other modes? These are surely key questions to be asked alongside addressing the operational and driving behaviour issues associated with implementation.

The DfT has considered HaShR in its NTM production of road transport forecasts (DfT, 2008a) in examining the scenario of HaShR equivalent to (and in place of) planned motorway widening. There appears some acknowledgement of the potential for HaShR (as with new infrastructure capacity) to generate some new traffic – “even when [HaShR is] on, congestion eventually begins to rise again as flow increases to utilise the additional road space” (DfT, 2008b). While we recognise that HaShR as currently envisaged is not equivalent to ‘large scale road building on the cheap’ we suggest there is a serious concern that its apparent cost-effectiveness will lead to an expansion of its application that would then become the equivalent to a substantial road building programme (‘HaShR to Prosperity’ perhaps as opposed to Thatcher’s ‘Roads to Prosperity’). There is a remarkable lack of debate about the long-run implications of widespread HaShR from a demand management perspective and this apparent failure to explore and discuss the potential unintended and second-order effects of this policy is the principal reason why we propose that the policy should be stopped (or at the very least delayed).

#### 4.4 Free Concessionary Fares for >60s

The decision to offer free travel to all over 60s was, it appears, not a policy which emerged from the Department for Transport but the Treasury. As a devolved policy it is worth noting that England followed after Scotland and Wales in adopting this policy. The total cost of concessionary fares rocketed from £487m to £712m in England alone between 2005/06 and 2006/07 when the scheme was introduced within local authority boundaries (funded through DCLG grants). The Department for Transport has subsequently had to make available an additional £212m to allow for the additional costs of making the concession eligible for travel across local boundaries in a nationwide scheme.

If the purpose of the subsidy is to improve the well-being of older people then it is poorly targeted. First, the concession is available to all older people whether or not they have access to a bus service and whether or not they have the capability and confidence to use it. Secondly, it is far from clear that fares per se are the number one concern regarding older people and bus travel. Increased frequency of service is more important than fares reductions as are issues such as driver behaviour (Marsden et al., 2009). There is a separate larger question as to whether the subsidy should focus on the older traveller at all (given the pre-existence of a 50% concession). Such a subsidy, targeted at those seeking employment or children in low income families would arguably deliver more for the equality and inclusion agenda. In the severely restricted financial climate we are entering such examples of poorly targeted subsidy must be removed. Whilst such a move would be politically difficult in times of growth, the current climate arguably provides an opportunity to take this decision and determine an appropriate replacement.

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#### 4.5 The separate classification of Commercial and Industrial (C&I) waste from household municipal waste

DEFRA's 'England Waste Strategy' (2007) highlighted the need for reducing the amount of waste generated by the commercial and industrial sectors which currently stands at about 68 million tonnes per annum (24% of the annual waste arisings in England).

Under Section 34 of the 1990 Environmental Protection Act, commercial premises have a 'duty of care' to make satisfactory arrangements for their waste collection (Defra, 1990) and many different private contractors can provide this service (e.g. Maynard and Cherrett (2009) found that 19 separate organisations collected residual waste and recycle from 76 businesses on Winchester High Street. Whilst some of this waste (chemical, construction etc) is very different in composition from household waste arisings, a large proportion (between 64% and 74% in some cases, (McLeod et al., 2008) is similar (paper and cardboard) and could be mixed. The reason for separating commercial from household waste when a large proportion is compositionally similar is down solely to historical practice, and reforming the legal definition to integrate C&I waste into municipal waste could pave the way for more sustainable 'co-ordinated' collection practices (Coggins and McIlveen, 2009). Many small businesses (SMEs) currently find it difficult to find a local trade waste recycling service that meets their needs as the collection of SME trade waste for recycling is often not considered commercially viable by the larger waste contractors. DEFRA estimates that although 71% of SMEs currently undertake some form of recycling, 1.16 million are still not recycling any materials because of these reasons, and there is therefore a significant market opportunity to set up trade recycling services. Following the lead set by many of our European neighbours and re-classifying C&I waste in this way could allow local authorities to offer joint domestic-commercial collections which could have a significant impact in reducing waste collection vehicle activity in urban centres. This is one example of where regulatory reform could generate significant benefits with little or no investment. There must be others.

### **5. Response – Policies to Start**

#### 5.1 Distance Based Road-User Charging

Section 3 highlights the long-term fallibility of the current approach to taxing motoring through fuel duty and VED. The limit will soon be reached where decisions taken to offset reductions in revenue brought about by a shift to low carbon by increasing fuel tax will be seen as acceptable. This is the medium-term impetus for a change in the way we pay to travel. We suggest the introduction of a distance based road user charging scheme which may have charges differentiated further by type of road and time of day. Until now implemented road user charging schemes have been somewhat limited both in terms of scale and scope, based either on specific locations or for specific types of vehicle, namely road haulage. Although previously considered in the UK (most recently DfT, 2004) this is not a Government policy and a number of European Countries are currently considering more ambitious road user charging schemes, most notably the Netherlands with a nationwide distanced-based scheme for all road users and Sweden, France and Belgium in relation to road haulage (Vonk Noordegraaf et al 2009).

Clearly if such a radical scheme is to be introduced then there is the issue of public acceptance which can be addressed to a certain extent by being revenue neutral, at least in the first instance. This could involve the removal of VED and a reduction of fuel duty in subsequent years. Revenue neutrality is a key principal in the Dutch proposal. It is important first to establish such a scheme – which would be a major change in the way people pay for travel. Further complexities could be introduced at a later stage. We see, for example, the potential for local authorities to be allowed to introduce (within specified limits) additional local 'time of day' taxes for roads in their areas with revenues hypothecated for transport measures. For example, Devon and Cornwall could increase the charge during Fridays and Saturdays in the summer peak period. Such schemes are often criticised for reducing the link between car use and CO<sub>2</sub> emissions and we feel this could be addressed by further tax reforms as set out in Section 8.2.

Clearly, practical issues relating to scheme design, cost, complexity, reliability, robustness of the technology, on-board or off-board charging, effectiveness and accuracy need to be

carefully considered. The Feasibility Study of Road Pricing in the UK (DfT 2004) identified the benefits quite clearly and asked why “aren’t more public authorities around the world implementing road pricing...?” The simple answer is that it involves change. As such, there is a need for information, transparency, and education and the rationale for motoring taxes in this country has for a long time been murky (HoC, 2009). Reform of the system of paying for motoring will be necessary – it is time for these issues to be addressed.

### 5.2 Personal Carbon Allowances

If emissions from personal air travel (excluding business journeys) are added to domestic emissions, 51% of the UK’s carbon equivalent emissions are the direct responsibility of individual consumption (HM Government 2009b). A radically different approach to demand reduction which provides a framework for reducing demand for all mobility and energy services, as well as for increased energy efficiency and the carbon intensity of fuels - is the concept of personal carbon allowances/trading (PCAs). The idea of an overall cap on emissions that is progressively brought down in line with targets could convert national carbon reduction aspirations into reality in a way that is equitable, ensuring that every citizen plays their part. However, this does assume that governments would be prepared to allow prices to rise to very high levels if this were needed to maintain the cap.

PCAs could take many different formats, starting first with just vehicle fuels and scaling up to include individual purchases of goods and services with parallel schemes capping and reducing emissions from the other half of the economy. The current government has concluded that compared with an upstream trading scheme covering the relevant sectors, PCTs would be an expensive way of achieving a relatively modest additional reduction. This is primarily due to the administrative costs of setting up and running a scheme. Such findings are however contested (e.g. Bird and Lockwood 2009). In addition to taking an integrated approach to energy use and mobility services, a main additional effect of a PCA scheme above and beyond a pure price signal is arguably the increased visibility of emissions leading to a wider range of effects including greater price visibility and higher motivation to reduce emissions (Bird and Lockwood 2009; Parag and Strickland 2009). One of the obstacles to feeling responsible for climate change is that it is so removed from individual experience (Anable et al. 2006). However, there is insufficient evidence to estimate the scale of this additional effect.

Arguments also exist around the equity impacts of PCAs. There exists clear potential for equity benefits as the scheme would reward those who used energy wisely and penalise those who didn’t. A system that allowed those who rarely drive and fly to sell their quota to higher users and flyers would be massively redistributive. As with our current benefit system, those with particular need could be compensated using the cash generated from selling the other half of credits to industry. This is both equitable and fair, and would encourage the wider use of energy efficiency measures and innovation in green technologies. The operational complexity of such schemes may though prove to be a barrier and such schemes should not be seen as seeking to correct all of the distributional issues which are faced in society. Given the potential for such a scheme to align behaviour and prices we believe it is too early to be dismissed from the policy mix. Its adoption would however radically alter the other proposals we make on environmental taxes.

### 5.3 Treating the telecommunications infrastructure as part of transport policy’s responsibility

A cornerstone of established transport planning is that travel is a derived demand. It is derived from the need or desire to participate in activities. Travel dictates individual and organisational accessibility - affording access to people, goods, services and opportunities. Such access fuels economic activity. There has been an evidently strong link between traffic growth and economic growth. However, we would assert that the underlying coupling is in fact between accessibility growth and economic growth. The information age, we suggest, has contributed to the weakening the traffic intensity of economic growth because access is becoming less dependent on (motorised) mobility. It seems remarkable then that the Government’s consultation document on its future transport strategy (DfT, 2008b) centred attention on “identifying strategic use of the road network”, “identifying strategic use of the railways” and “identifying air services”.

Conspicuous by its absence in a 21st Century policy document was “identifying strategic use of the telecommunications network” (i.e. ICTs): should it not be DfT’s responsibility to address the transport of information as well as the transport of people and goods? Assuming this responsibility would resurrect the (long lost?) notion of integration. Commuting, business and shopping in 2008 accounted for 540 of the 992 trips per person on average: over half (54%) and 41% of distance travelled (DfT, 2009c). In all three cases information exchange is a significant element of the destination activities (and growing in the case of the first two in the knowledge economy) and ICTs are already playing a role in providing alternative means of engagement. Transport policy is currently inactive in relation to this: it needs at least to be reactive in working alongside market forces. Telecommuting, teleconferencing and teleshopping will never replace their physical travel counterparts but they can replace a proportion of travel if suitable policy measures are employed. Such ‘teleservices’ are in effect carrots: encouraging their uptake and then locking in the benefits like other carrot measures requires the accompaniment of sticks. For instance, we have for too long assumed public transport to be the bedfellow of road pricing when as well if not instead we should now be seeing teleservices as road pricing’s accompaniment.

#### 5.4 Rationalising Waste Collection

Section 4.5 highlighted some of the barriers to more efficient recycling as a result of the classification of waste streams. There exists a wide range of actions which have been piloted and which, if adopted on a larger scale could reduce the number of goods vehicles accessing our town centres and reduce the mileage driven to dispose of recyclate. One example of good practice is New Forest District Council where commercial waste is collected as part of the domestic rounds from SMEs who have pre-registered with the council and have acquired a ‘duty of care’ certificate. Research looking at theoretical joint domestic/commercial collection rounds across Hart and Rushmoor suggested that a commercial waste load of 3.9 tonnes/fortnight could be readily accommodated on the existing alternate weekly collection domestic round, without increasing the number of trips required to the waste disposal site (McLeod and Cherrett, 2007).

The Producer Pre-Treatment Requirement (Biffa, 2009) requires businesses to separate out the recyclate (e.g. cardboard, paper, plastic, glass, metal) from the residual waste stream at source, or send un-separated waste to either a sortation facility where recyclate can be recovered, or to send co-mingled waste to an ‘energy-from-waste’ facility (incinerator). Businesses could co-operate here too. In a drive to promote more sustainable logistics, could some of the larger retailers employing centralised distribution systems back-load (using spare space on the delivery vehicle) recyclate on behalf of their high street neighbours, particularly to help SMEs? Many of the larger High Street names utilise their delivery vehicles to back-load their own recyclate in this way, but to transport other businesses’ waste, a waste carrier’s licence would be required by the main logistics provider. This could be issued by the Local Authority free of charge as part of an incentive under a Freight Quality Partnership. Despite various other issues, (brand image, variability in peak volumes), the potential recyclate could make it financially attractive to major retailers as a back-loading option, and could reduce third-party waste collection vehicle activity in the retail centre. Other models include dropping materials at a recyclate ‘groupage’ point (e.g. a distribution centre) where the material could be consolidated before disposal. Local authorities would have to be the drivers of such ‘green logistics’ strategies, being prepared to stipulate that in certain areas, freight management (be it for core goods delivery or for service activity) will be undertaken in a particular way, similar to the ‘landlord-tenant’ relationship operating in many multi-retailer shopping centres. Maybe it is time to turn our attention to really getting the most out of our existing systems – apparently common sense initiatives such as these need to be driven forward.

## **6. Response – Policies to Do More of**

### 6.1 A Sustained Investment in Smarter Choices

Investment in smarter choices remains a marginal activity in the UK. An assessment of local transport plans in 2007 indicated that only a quarter of transport authorities were making significant use of smarter choices in their plans (DfT 2007). The recent Carbon Reduction Strategy sparked debate over the Government’s commitment to smarter choices after it

appeared to suggest that research had overestimated their impact and more evidence is required before committing more investment (DfT 2009d; LTT 17/09/09). There are legitimate concerns over the quality of the evidence and issues of scalability and the need to lock-in the benefits (Gross et al. 2009; Bonsall 2007; Cairns et al. 2004). These issues will be difficult to resolve where implementation is short term and piecemeal. Yet evidence from policy and practice leaves little doubt over the potential malleability of travel behaviour at the individual level, particularly when behaviour change is expanded beyond mode choice to include destination switching, car occupancy, route timing and even car choice. A systematic evidence review undertaken by the UK Energy Research Centre found remarkably consistent reported effects from a variety of measures in very different parts of the world with approximate car usage reductions of around 5-10%, greater reductions in VMT and significant increases in alternative modes (Gross et al. 2009). The point is that it is not simply about short run 'mode-switching' (replacing a car journey with a public transport journey or active mode) but that being informed about and having quality transport options affects the medium and longer term choices people make over where to live and work and other lifestyle choices.

The question remains over what a sustained investment in smarter choices entails and at what level of investment? DfT have been trialling smarter choices in three sustainable travel towns (total population 350,000) at a cost of £10m (£3.3m each) over 5 years, plus an extra £5m spent on supporting capital schemes. This equates to a total spend of £45 per head of population in the towns across the five years. Provisional indications are that over this period car driver distance across all trips was reduced by 5%, with the biggest impact (a 7% distance reduction) on trips of up to 50 miles (Sloman et al, forthcoming). A longer term investment is likely to see a build up of effects at lower cost per kilometre saved, although potentially hitting a ceiling once the easier wins are reached (Cairns et al. 2004). The evidence is weak for the potential of smarter choices in rural areas. Implementation of smarter choices across urban areas in England (population ca. 40m) of the country at the same 'intensity' as the three sustainable travel towns would imply annual public spending of about £360m. Importantly, smarter choices require primarily revenue expenditure which, in the current fiscal context, may be hard to sustain without coupling them with complementary revenue raising measures or taking away from other transport budgets. However, Section 6 has already highlighted over £300M annual revenue savings from reversing the shift to 100% concessionary fares.

## 6.2 Extend First Year VED rate to pay for low-carbon vehicle subsidies

A long-term programme is scheduled to commence in 2011 with a budget of £250m to provide subsidies of between £2000 and £5000 per vehicle for ultra-low carbon vehicles to offset the significant short-term additional costs of their purchase. A budget of £30m is also available for low carbon buses. The argument here is that these subsidies will stimulate the uptake of these technologies in the UK and will put UK manufacturing at the forefront of this potentially important market.

The ultra-low carbon vehicle purchase subsidy is a more strategic initiative than the scrappage scheme which we have suggested is stopped. Some form of incentives will be required to overcome the cost barriers to early adoption and ultimately bring down the unit purchase cost of these vehicles. It is unlikely that such large subsidies would provide a positive benefit:cost ratio but there may be a case that the short-term losses will be outweighed by the longer-term gains. Of course, an equally viable policy that countries without a vehicle manufacturing base might propose is to free-ride the technological development costs and adopt slightly later. It appears that the UK government has eschewed this policy in favour of the arguments of developing a 'green economy'. This is a debate to which politics has as much to say as academic research.

However, even if it is accepted that low carbon vehicles should be subsidised there is a range of means by which this could be done. Should the government be subsidising vehicle purchases? The UK has traditionally only applied VAT to vehicle purchases whereas many other governments include a purchase tax. A more equitable and logical solution would be to adopt a scheme similar in nature to the French 'bonus-malus' scheme whereby cars with CO<sub>2</sub> emissions less than 130g/km (progressively reducing over time) receive a €200 one-time bonus whilst those over 160g/km pay on a sliding scale from €200 to €2,600 for cars

with emissions higher than 250 g/km. The aim of such a scheme is zero net revenue. Such a measure would appear to fulfil environmental objectives, avoid conflicting with congestion objectives, not cause undue distributional impacts as well as reducing the direct subsidy from government. The decision of the UK government to introduce higher first year rates of VED for new cars emitting over 130g/km would suggest that an extended scheme would be feasible and in the direction of travel of current thinking – it should be adopted.

### 6.3 Workplace Parking Levy

“Employees driving to work and enjoying free parking at the workplace account for a significant proportion of peak hour congestion...Local authorities determine the price and availability of public parking, on and off the highway. But they have little control over existing parking spaces at private business premises” (DETR, 1998). As such, the view was that additional powers were required in order to address the issue of workplace parking and in 2000 Local Authorities were given the power, by the Transport Bill, to introduce a workplace parking levy (WPL). If Local Authorities introduced such a scheme then owners or occupiers of business premises would have to apply for a licence so as to allow a certain number of vehicles to park on site. The aim of the WPL would be to provide an incentive for occupiers of premises to reduce the total number of parking spaces available, thus restricting the number of vehicles for which a licence is required. It also serves to partially correct the untaxed perk of free city centre parking (which is simply waived by anyone choosing to commute by more sustainable modes).

Nottingham City Council is the only local authority to propose and have approved a WPL. It has set the aim of the WPL as one of constraining congestion and providing funding in order to improve public transport, most notably the extension of the City’s tram network. The Nottingham WPL is due to start in 2012 with a phased implementation charge of £253 per space, per annum. The scheme will only apply to employers with more than 10 spaces (500 employers will have to pay whilst 3000 smaller businesses will be exempt). It is expected that 50% of employers will pass on the charge to their employees and there may be an overall reduction in parking spaces of 10% (Nottingham City Council, 2008)

Like any new policy measure the WPL is not without difficulties. For example, the WPL is seen as something of a blunt instrument for dealing with congestion since it is not able to distinguish between journeys undertaken on congested roads within congested periods with those that are not. In addition it does not account for the fact that some motorists will have viable public transport alternatives while others will not. The impacts on streets around charged premises and the wider impacts on business are unknown. Much will depend on the perceived advantages of the new public transport provision that such a scheme can fund. In the current economic climate WPL may be one of the few relatively quick and cheap measures available to authorities to support major public transport scheme development. Whilst not perfect, it does at least correct a hidden subsidy to some car commuters and offer some incentive to promote alternatives to car travel to avoid the levy by reducing the required numbers of parking spaces.

### 6.4 Speed Enforcement

Driven speeds on motorways and dual carriageways in Great Britain are well above the optimum for fuel efficiency, with 49% of cars exceeding the 70mph limit on motorways and 15% travelling above 80mph (DfT 2009e). This level of non-compliance is testimony to the relatively relaxed policy enforcement and social permissions surrounding motorway speeding as well as its facilitation by vehicles more efficient and comfortable to drive at speed. Yet, this demand for more speed, power and comfort has eroded some of the efficiency gains that would on their own have led to more rapid reduction in emissions per kilometre (Sorrell and Dimitropoulos, 2007).

A simple law of physics dictates that fuel efficiency falls significantly as speed increases. This relationship is unlikely to be mitigated to any great extent by improved vehicle design. A medium sized diesel car will emit up to 14% more CO<sub>2</sub> per kilometre at 80 mph compared to 70 mph (NAEI, 2003). Yet, in their low carbon strategy, the DfT relegated strict speed enforcement to ‘policies considered but not adopted’, presenting a large negative NPV due to pessimistic assumptions about compliance, cost and the cumulative order in which carbon savings emerge from policies in their strategy (DfT 2009d). However, later in the year, the Climate Change Committee adopted it in their core scenario, calculating that strict

enforcement on 70 mph roads would save 1.4MtCO<sub>2</sub> in 2020 (that is 4% of savings expected from all transport policies) (CCC 2009). Moreover, these savings can happen early in the budget period and are therefore worth more over the longer term.

Time losses due to slower speeds are an important policy preoccupation (off-peak at least!). However, the time-elasticity of demand means speed enforcement is simultaneously a demand management and an efficiency measure. It affects journey time, traffic flow and potentially has a longer term impact on the demand for faster, more powerful vehicles. As is a common failure of carbon calculations, particularly of demand side policies, these secondary impacts are not included in calculations of potential carbon savings. Hence, speed enforcement could amplify the benefits of many of the changes that are being proposed to curb emissions as well as having the locking-in role already outlined. This is all in addition to substantial safety benefits. A more radical option would be to mandate the introduction of Intelligent Speed Adaptation technology which provide real time advice to the driver or physically restrict vehicle speeds (Carsten et al. 2008).

Enforcing speed limits, while doing no more than ensuring road users obey the law, is in practice a contentious political issue and is a test case for public engagement and communicating trade-offs and policy packages to the public. Faced with a choice between this and more restrictive policies, speed enforcement may experience renewed popularity. Unlike many other transport demand restraint mechanisms, lowering speed limits would be one of the fairest ways of reducing emissions as it applies to all of the people all of the time, regardless of income or geography.

## 9. Conclusions

Transport policy has never been more challenging or more challenged. 'Predict and provide' has been eschewed. The alternative policy path of accepting broadly similar levels of growth but managing the impacts through more intensive use of the assets and a light touch approach to demand management, has not put the UK on a path to a more sustainable transport system. This is in spite of some notable successes and record levels of investment.

The future is characterised by a significant reduction in public sector support for transport. This must surely be the klaxon for a change in policy. If 10 years of record investment did not achieve the change that was promised then what odds 10 years of reduced investment will? This provides an opportunity to reposition the debate and to re-examine the basis upon which the debate is held. This paper concludes that the next government needs to re-examine the recent trends in traffic growth and the stability of the driving forces. It also needs to develop policy scenarios that are capable of meeting the simultaneous driving forces of climate change, obesity and economic recovery.

To meet these demands requires transport policy makers to focus on those policies which bring the most benefits at least cost, to withdraw comfortable but unjustifiable and sometimes inequitable subsidies and to look to remove the many inefficiencies in the way we travel and move goods. This paper presents a short analysis of 14 such policies - our attempt to begin this debate. We set out why we think policies such as High Speed Rail, 100% concessionary fares and vehicle scrappage subsidy should be stopped and why there is a case for more widespread use of smarter choices and speed enforcement on motorways. In thinking about the "new" policies that should be adopted we noticed at least one elephant in the room. There still seems to be a reluctance to consider telecommunications as a means of travel for example. Equally crucial is the need to think about what might replace fuel duty beyond 2020 when the switch to a more mixed fleet of petrol, electric, hybrid and biomass fuelled vehicles will place the current way we pay for travel under significant strain. A national road user charging scheme or the adoption of personal carbon trading are two options we consider.

There are undoubtedly some difficult choices ahead but we must avoid the 'easy choice' of a cut-price business as usual approach. We hope that this paper sparks a lively and on-going debate within UTSG and beyond on alternative policy options for the future.

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