Governing and Paying for England's Roads




Stephen Glaister

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RAC Foundation

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About the author

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He was on the Board of Transport for London from 2000 to 2008 and a non-executive director of London Regional Transport from 1984 until 1993.

He was a member of the Steering Group for the Department for Transport's 2004 National Road Pricing Feasibility Study and part of the 'Friends' group advising Sir Rod Eddington on his Transport Study.

Between 1993 and spring 2001 Stephen Glaister advised the Rail Regulator on economic matters.

He was a member of the government's first Advisory Committee on Trunk Road Assessment and has been Specialist Advisor to the Parliamentary Select Committee on Transport and an advisor to the Commission for Integrated Transport.

He has published widely on transport policy and also on regulation in the telecommunications, water and gas industries. He is the principal author of a series of three studies into national road pricing for the Independent Transport Commission and a co-author of the RAC Foundation study *Roads and Reality* which addresses road investment and pricing strategy for the next thirty-five years.

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Foreword by Sir Rod Eddington

In 2006 the government asked me to advise on the long term links between transport and the UK's economic productivity, growth and stability, within the context of their commitment to sustainable development.

My study demonstrated that the performance of transport networks is crucial to sustained productivity and competitiveness and that transport projects and policies offer some remarkable economic returns.

The government accepted my findings, as well as those of inquiries carried out in parallel by Lord Nicholas Stern on climate change and Kate Barker on the planning system. Taken together these offered a powerful and coherent recipe for stimulating the UK economy whilst respecting the need to deal with climate change and the other environmental disadvantages of transport activity: better charging policies to encourage more effective use of the existing infrastructure and to reflect the environmental costs; investment in new transport capacity where present and future demands were being inadequately met; and reform of the planning system in respect of infrastructure projects of national strategic importance.

Since then there has been progress towards implementing some of these recommendations, such as the creation of the Infrastructure Planning Commission, the publication of some of the National Policy Statements and the creation of Infrastructure UK. Techniques of economic appraisal of projects have been reviewed and improved. There have been commitments to increased spending in capacity on railways.

However, progress in other areas has been more limited. I noted in my report that congestion leading to unreliability on the road network is already a problem that threatens to get worse. I said that "the potential for benefits from a well-designed, large scale road pricing scheme is unrivalled by any other intervention". Yet there has been little progress towards either providing more road capacity or implementing national road user charging.

The new government may do things in different ways but the fundamental problem of how to deal with the demands on the road network by a growing population and a recovering economy will remain. And there is a new and severe obstacle that I did not have to deal with: the struggle to recover the public finances.

In recognising these challenges, this paper considers some alternative ways of governing, managing and paying for England's road network. England, after all, with strategic organisation under the Highways Agency is a good place to start. The paper draws on recent experience of other models of ownership, governance and regulation in the utilities sector and in rail, and looks at how such models could be adapted for roads.

From my experience putting roads onto a more realistic commercial footing can transform the relationships with private sector investors and offer the public sector new alternatives to the traditional ways of doing things.

I recognise that roads are a sensitive issue for many. Equally, with 90% of travel and transport in Britain taking place on roads, these challenges cannot be ignored if the road network is to be capable of meeting the needs of a modern economy. I found Stephen Glaister's insights and experience invaluable during the course of my study in the UK and I commend his report to you for discussion and debate.

Sir Rod Eddington

Executive Summary

The problem

The nation already has some of the most crowded roads in the world. Government expects a rise in population of 16% by 2033 and a return to economic growth. All indications are that traffic and congestion will increase.

Under the present system more expenditure on roads requires more funding from the Exchequer. Unless this is changed the general financial crisis will make it almost impossible to find resources to manage and cater for these growing needs.

Currently there is no direct relationship between the 'charges' paid by users—some £47 billion in 2009—and the quantity and quality of what is provided in return. There are neither guaranteed standards of journey speed and reliability, nor compensation for delays incurred by the road-travelling public, which is common for other modes of transport.

There is also a striking lack of long term, strategic thinking. Whilst the government has established a systematic process of five year plans for railways with an associated funding commitment (and private water companies are obligated to plan a quarter of a century in advance) there is nothing comparable for roads. It will be increasingly difficult for government to justify this approach in the future.

The lack of long term strategy and the inability to provide long term funding cannot be adequately addressed within the present arrangements. Reform involves placing the road network at arm's length from government. This would remove roads policy from the cut and thrust of day-to-day politics and restore public trust in matters of roads taxation and spending.

Scotland, Wales and Northern Ireland have devolved administrations. For simplicity, we restrict our attention to England.

The options range from relatively minor administrative reform to wholesale change. They include the establishment of:

- a body within the government administration, but more autonomous than the present Highways Agency and with strategic duties; or
- a legally separate public corporation or public trust. Whilst not privately owned this would have an independent board and powers to allocate budgets, make investment decisions and execute them; or
- privately owned utilities ('privatisation'). The assets are transferred by sale of shares to the public in for-profit companies, subject to independent regulation.

Reform might or might not involve the introduction of direct charges at the point of use ('tolls' or 'road user charging'). In this country direct charges are limited to a few bridges and the M6 Toll Road north of Birmingham, although they are commonplace in France, Italy and other countries. Currently some English roads (such as the M40) are provided and maintained under a system of shadow tolls, where a private contractor receives payment from government which increases as more vehicles use them. This goes unseen by the road users and so does not influence their behaviour. Congestion problems could be greatly eased by replacing some of the present taxes with direct charges based on distance travelled. These might vary by time and place to reflect the local level of congestion. This would turn a current liability to HM Treasury into a financial asset.

But such a proposal for change must offer benefits for road users (the majority of the population) that are clear and credible or it will be rejected, as past governments have discovered. These benefits can include: lower fuel duty and road tax; better maintenance; better traffic regulation; removal of traffic pinch points enabling faster and more reliable journeys. A good package can offer effective management of existing congestion, new funding for road infrastructure and reductions in road taxation whilst maintaining the contribution to general government spending.

Any reform would need to ensure adequate protection of the public interest through appropriate legislation and regulation.

There are some things that the reform must avoid: transfer of ownership to asset managers who are incentivised to generate shareholder value by over-engineering; hiding undesirable cost savings by using poor construction standards; transfer of ownership without an adequate, enforceable obligation to improve the service offered; creation of a body which has the responsibility to deliver all the required performance but has insufficient ability to fund these activities; a powerless consumer watchdog introduced as a gesture rather than as an effective complement to regulation; a mutually destructive relationship between the new body and regulators, national, regional and local government and road users; politicisation of the process; a confusion of objectives leading to inaction.

The detailed options

Ways forward include creating one of the following:

1. an enhanced Highways Agency with full maintenance and capital investment responsibility for its entire network (motorways and trunk roads, and possibly some other major roads). This would create a distinct, strategic, executive government enterprise. This body would receive income direct from government, perhaps through shadow tolls, with the eventual possibility of introducing road user charging, coupled with a reduction in fuel duty and possibly road tax (VED);

2. a public corporation or public trust with shadow tolls. This is similar to (1), except that the independence of the body would be established in law. This has the advantage that it would emphasise the duty of the body to promote a long term strategy. Again, this could form a preliminary step towards direct road user charging;
3. a public corporation or public trust with direct charges (introduced alongside a reduction in motoring taxation). This would offer several advantages:
   - charges are 'real' for users so they can be used to manage demand and congestion, whilst funding a better quality of service for users;
   - they are 'real' for the corporation so there is a direct link between performance and income net of costs;
   - the body has its own net income and would be required to pay part of that to the Exchequer making up for the lost fuel duty and VED. This would mean some of the revenue raised from charges flowing to the Treasury rather than the body being funded by grants from the Treasury. This mechanism would allow the body to borrow like any other private company, free from public finance restrictions and government interference. The borrowing could be used to finance road enhancement such as better maintenance and extra capacity; and
   - since it would not be a for-profit business the public would be less concerned about 'profiteering' from a public asset.
4. a regulated private utility with shadow tolls. This would extend the present system of individual Private Finance Initiative road schemes to a whole network and involve selling assets to the private sector with the proceeds going to the Exchequer. The sale could be in perpetuity or for a fixed period. Some Private Finance Initiative schemes have not worked well, but provision of roads is a relatively simple activity for which it is possible to create an enforceable contract. So far the method has worked reasonably well for roads.
5. a regulated private utility with direct road user charges. This has all the characteristics of (3) but in addition would generate a substantial capital sale value. Regulation is essential to protect the public interest by controlling charges and enforcing commitments to maintain and enhance the assets. If this private utility operated only tolls on the motorways it would be similar to current practice in France, Italy, Australia and other countries.

Our preference

Reform must deliver better quality of service to the travelling public. It must: tackle congestion; raise net new income ring-fenced to improve the level of service and increase capacity where economically and environmentally justified; and create an organisation free from the spending and borrowing strictures that apply to bodies belonging to the public sector.

To meet these requirements the new body must implement road user charging and the revenues must be sufficient for it to fund both its own activities and make a contribution towards general Exchequer funds. There must be a reduction in fuel duty and VED, in addition to an enforceable requirement to improve the network.

This leaves a choice between a public corporation or trust, and a privatised utility. Either would require a measure of independent, public interest regulation. The public corporation or trust avoids the controversy of 'privatising a national asset'. But from the viewpoint of a cash-starved government a major attraction of the privatised utility option is that it could raise new capital from the sale. There is clearly a political decision to be made about which route to follow.

Whichever long term route is finally followed there are some changes which could and should begin immediately. We would like to see a more strategic Highways Agency take full maintenance and capital investment responsibility for its current portfolio of motorways and trunk roads including those identified as only of 'regional significance' by the previous government. The network could be further extended to include some important principal roads presently the responsibility of local authorities, many of which have in recent years been transferred from the Highways Agency.

Change could continue with the introduction of universal shadow tolling and actual road user charges on one or more major roads. The intention would be to extend road user charging progressively to a substantial part of England's main road network. This could be accompanied by a programme of capacity enhancements and a reduction in fuel duty and VED. An independent regulatory office would be established. This would: protect the road-user and general public interest; protect the interests of investors; and help manage relationships with local highway authorities.

Implementation

This paper does not make a detailed proposal: that should be the next step. Government should establish an interdepartmental working group with a remit to take these ideas forward for political consideration within a specific timetable.

Conclusion

The numbers tell the story:

- In the ten years up to 2008 traffic increased 17% on motorways, yet the motorway network grew in length by only 4%.
- Over the same period total traffic rose by 11% but overall there was only 1.5% more road space.
- At the same time the number of vehicles on the road was up a quarter.

The future looks equally bleak. Economic recovery and significant population growth offer the prospect of more traffic and more congestion. In the absence of a major road building programme funded by government, what is to be done? The only credible answer is to create a separate roads body; independently regulated, free to borrow on the money markets, with the ability to levy direct road user charges and an obligation to maintain the network to a specified standard and to enhance it to an approved programme. It is fundamental that any road user charging scheme is accompanied by cuts in, or the abolition of, fuel duty and road tax.

When it comes to just about every other good and service, we are charged in relation to the amount we consume and when we do so. This even applies to transport. Airline, coach and train tickets are not uniformly priced but vary with time of day and distance travelled.

Road user charging does not lend itself to consensus. It is a contentious issue and implementation would be fraught with political difficulty. But the road network is at the core of our transport system. How it is maintained and enhanced is not a subject that can be ignored.

In the long run it might be that road pricing is rejected by the politicians and the public, but that decision cannot be made until we have had a reasoned debate and credible alternatives adopted.

1. Introduction

The UK economy depends upon its infrastructure—like any other. Broadly we must expect the demands on the infrastructure to grow in line with population growth and economic growth. Yet the infrastructure is already inadequate: roads and railways lack capacity which leads to congestion and unreliability.

Over several decades our political and administrative systems have failed to deliver the policies, mechanisms or resources to provide road infrastructure on a scale that is economically justified, even when public funds might have been available. The new difficulties with general public funding, inevitable for some years to come, will make this problem even harder to resolve.

The deficiencies will not be repaired under the administration and funding arrangements inherited by the Coalition Government. The Department for Transport (DfT) carries limited weight within government—the rapid turn-over of ministers is symptomatic of this—and in the recent past roads have carried little weight with Transport ministers.

The paper discusses options for reform for its road system. It seeks to secure effective and safe operation, the steady provision of adequate resources coupled with the raising of finance for such provision all overlaid with effective governance and subject to tight regulation. Scotland, Wales and Northern Ireland have devolved administrations. For simplicity, we restrict our attention to England.

2. The Problem

2.1 Growing population

The UK population is expected to grow. In 2001–2002 it was 59 million and by 2007–2008 it had grown to 61 million, of which 84% was in England (Office for National Statistics, 2010a). The Office for National Statistics predicts that by 2033 it will increase by a further 16% to 72 million. Further, there are marked and long-established movements of population which are tending to increase the stress on infrastructure in those parts of the country where it is already most stretched. The regional growth rates are shown in Table 2.1 (p. 10). Note that the growth forecast for the East Midlands, East and South West by 2031 is 20% or more.

2.2 Inadequate quality and quantity of infrastructure

The UK ranks 24th in the world for the quantity and quality of its infrastructure out of the 27 considered by World Economic Forum for its Global Competitiveness Report (2008–2009); 20th for rail and 24th for roads. UK motorways are used two and a half times more intensively than the average of eight major nations (the top five EU countries by population, USA, Canada and Japan) for people and twice as intensively for freight. Congestion is adding significantly to industrial costs. Estimates by UK Government of the economic benefits of creating new road capacity in congested circumstances show a significant surplus of benefit over cost—possibly as high as any area of public spending—as documented in Dodgson (2009), *Rates of Return on Public Spending on Transport*.

The Chancellor of the Exchequer and the Secretary of State for Transport of the previous government commissioned the independent *Eddington Transport Study* (2006) of the country's transport needs in relation to "competitiveness, stability and growth". It confirmed these propositions, noting that connectivity within Britain is generally good but

Table 2.1: Population growth forecast in the English regions, 2010–2031

Region	%
North East	7
North West	10
Yorkshire and Humberside	19
East Midlands	21
West Midlands	12
East	20
London	14
South East	16
South West	20
All England	16

Source: OPCS (Office for National Statistics, 2006)

that the quantity and quality of infrastructure are not adequate and that economic progress is increasingly being compromised by shortages of transport capacity.

The *Eddington Study* predicted that, without action, by 2025 congestion on Great Britain's road system would grow by about 30%—broadly in line with the projected increase in road traffic—with increases most marked in urban areas, key inter-urban corridors and around ports and airports. Eddington estimated the cost of this increased congestion in England at £10 billion for business with a further £12 billion for time wasted in congested traffic conditions for personal travel.

Whilst the government of the day officially accepted the recommendations of the *Eddington Study* it seems to have had little practical effect in delivering transport policy. Indeed, the House of Commons Select Committee on Transport went so far as to say in March 2010 that "the Secretary of State (Lord Adonis) has effectively rejected the main reasoning and arguments in the Eddington report by agreeing to High Speed Two."

In July 2008, the government published a Command Paper (Department for Transport, 2008a) on roads with the purpose of promoting and informing the debate about "how we might best deliver the road capacity that will support the trips that people and businesses need to make in the most sustainable, reliable way". It noted that road transport accounted for nearly three quarters of all trips and that there were 28 million cars registered. Three quarters of households have at least one car and nearly one third of households have two or more. In survey results quoted in the report, 87% of respondents

felt that congestion was a "serious" or "very serious" problem for the country and three quarters believed it "important for government to tackle congestion in relation to its other responsibilities". It showed predicted congestion patterns on the GB road network in 2025 derived from the *Eddington Study* (ibid.).

In its report on the major road network the House of Commons Select Committee on Transport noted (ibid.: 60) that "throughout our inquiry, witnesses described congestion on the major road network as the major problem on the roads".

2.3 Increasing prosperity increases demand

Recently the demands on the transport infrastructure have eased because of the slowing of the economy. However, previous studies have shown this to be a temporary phenomenon: all political parties insist that the economy will recover, with the implication that the demands on the infrastructure will grow again in the future. A remarkable parallel with the 1970s is documented by Parish (2009) in *The 1973–1975 Energy Crisis and Its Impact on Transport*: economic recession and catastrophic public finances; followed by the strong recovery of the economy and traffic volumes over the 1980s. If, as has been typical for many decades, real economic output grows at over 2% per annum then it will double in less than thirty-five years. The demands on infrastructure will grow accordingly, in addition to the pressures from the growing population.

Recent research for the Independent Transport Commission (Dargay, 2010) discusses the relationships between economic activity and traffic. The raw National Travel Survey data suggest a flattening in long distance car travel growth 2002–2007, while incomes and GDP were growing. Yet the analysis shows no difference in the responsiveness of car travel to income in 2002–2007 compared with 1995–2001. One hypothesis is that worsening congestion, travel times and unreliability on the interurban road network may be causing this, but data are not readily available to test this. Equally it could be a transfer from car to rail as rail service and quality have improved, but research consistently shows low responsiveness of car demand with respect to rail costs and times. There has been a rapid growth in light van traffic in recent years and the official traffic forecasts (Department for Transport, 2008b) expect this to continue: this is also discussed in the RAC Foundation's report (Banks et al., 2007) *Roads and Reality*.

There are four factors which may inhibit the growth of travel demand and diminish their effect. Firstly, the effect of the green agenda on land use policies and attitudinal change. Secondly, the era when increases in road travel prices in general were below or in line with inflation may be over. Thirdly, we are in the infancy of the electronic revolution which could transform the need for travel. Fourthly, 'soft travel demand management' policies can have some effect if implemented sufficiently widely. However, many of these have been recognised for a number of years and their

influence is not yet readily apparent. Unless the government can show good reason to expect that factors like these can be relied upon to offset the traditional forces causing a growth in demand, it should develop policies to respond to them.

2.4 Recognising the benefits of mobility

Providing it is done in the right way, at a cost that is reasonable in relation to the benefits and the users are charged a sensible price, it is desirable that demand for increased travel both by rail and by road be provided for. The benefits of increased mobility offered by the wider availability of the private car have been a vital ingredient of the improvements in the welfare and quality of life of the whole population and especially for lower income groups, as documented in *The Car in British Society* (Lucas & Jones, 2009). A substantial portion of the benefits estimated to be offered by High Speed Rail proposals derive from new rail traffic that would be generated by reduced rail crowding and improved journey times (Preston, 2009).

2.5 The disconnect between road charges and investment strategy

A fundamental difficulty with the way English roads are administered is that the considerable funds that users pay through Vehicle Excise Duty (VED) and fuel duty are paid into the Exchequer and become part of the general pool of government revenues used to fund government expenditures of all kinds. Quite separately HM Treasury makes grants to spending departments including the Department for Transport, and the DfT then decides how much to spend on roads. There is no direct connection between the resources spent on supply and the revenues raised from road users; and no obligation to supply a road network adequate to meet reasonable consumer needs. Investment in enhancement is funded out of general grant money and not out of direct payments by users. Road tax revenues exceed expenditures on roads by a factor of three or four (House of Commons Select Committee on Transport, 2009). There is no independent, public interest adjudication on whether 'charges' are reasonable according to objectively verifiable principles. There is little measurement of the quality of service experienced by users. There is no statutory body representing the interests of users.

HM Treasury is keen to preserve the convention that these revenues from road users are taxes rather than charges or payments for a service and, as with all taxes, unhypothecated. However, this convention was breached in the case of the London Congestion Charge: these charge revenues do not accrue to the Treasury but to the Greater London Authority which must use them for transport purposes in their area.

Experience with the reform of governance and administration of the other public utilities has demonstrated (i) how a connection can be created between the value consumers place on quantity and quality and what is provided by the supplier; (ii) how efficiency of

the supply activities can be promoted; (iii) how new income streams can be created to fund the necessary investments in capacity; (iv) the benefits of a degree of independence from day-to-day political interference for rational, long term planning; and (v) how the public interest dimension can be secured, both in relation to supply and to pricing. Smith (2009) sets these achievements out in relation to the telecommunications, electricity, gas, water and rail industries.

Whilst the UK government has put in place a systematic process for five year plans for the expected 'output' of the railways (High Level Output Specification: HLOS) closely linked to the funding requirement (Statement of Funds Available: SoFA), there is as yet no comparable process for roads. This means that the government may effectively have committed long term funding to rail projects with relatively low benefits in relation to their costs over a period when budgetary pressures could lead to cuts in the more flexible roads programme, crowding out investments that potentially offer higher benefits per pound of expenditure.

Many people, including the previous Secretary of State for Transport, Lord Adonis, have sought to suggest that rail investment is a solution to the shortage of strategic road capacity. However, whatever the merits of railway projects, they serve largely different sets of needs: a point recognised by the House of Commons Select Committee on Transport in its report on the major road network (op cit.: 48): "it is only a relatively small proportion of journeys on our major roads that could be transferred to rail, let alone high speed rail."

2.6 The financial and economic value of roads

Unlike railway users, road users make a healthy net contribution to the Exchequer's finances. Further, as Archer & Glaister (2006) have argued there are many situations where, if the benefits of new capacity were captured as revenue, new revenue would easily cover the costs of the extra infrastructure. These investments would confer substantial social benefits in relation to their costs and also reduce the call on the taxpayer. In other words the road network as a whole could be a financially valuable asset and there are many situations where capacity is so under-supplied that, if correctly priced, expansion by managing the system more effectively or developing new infrastructure, would be easily self-funding. It should be possible through creating new economic value in the road network to find a way to pay for it, and thereby fund enhancements. That would certainly be in the national interest.

We recognise that a substantial portion of the tax revenue from roads must continue to be dedicated to the funding of general government expenditure. In the present financial circumstances it is unrealistic to expect either a reduction in roads taxation or that a higher proportion of the current roads tax revenues would be diverted from other areas

of public expenditure. It follows that our proposals for greater spending on maintenance and enhancement of the road network involve funding either by efficiency improvements (cost reductions) or by additional overall charges to road users. The present systems for 'charging' for roads are so economically inefficient that it is possible to propose a package of reforms that would simultaneously raise more revenue, reduce congestion, fund new capacity, improve quality of service and improve environmental performance. The system might raise additional finances overall but many lower mileage motorists would save in comparison to what they spend today.

Under public ownership, infrastructure tends to be seen by government and HM Treasury in particular as a source of cost rather than benefit. Deferral of expenditure is the easy option and rationing systems tend to be crude rather than based on a rigorous ranking of effectiveness and efficiency. It is particularly difficult to change this when times are hard. Restructuring is the only route out of this dilemma, as we have seen with the other network utilities: telecommunications, gas, electricity and water.

3. Objectives of Reform

A coherent strategy and efficient demand management would better meet the needs of industry, commerce and private individuals, increase the economic value of what is one of the nation's most valuable assets and generally improve the quality of people's lives compared with continuing under the current arrangements.

While much of this can be and is achieved through direct government ownership and responsibility for the road network, the lack of long term strategy and the inability to link long term funding to it cannot properly be addressed within the present arrangements.

The road system is like any other physical infrastructure business in that it requires technical planning, strategy, physical engineering and financial engineering over a time horizon measured in decades. However, the road system, due to the dependence of its users on the mobility it offers, is of immediate and vital importance to the population. This is clearly revealed when it becomes unavailable, as during the fuel protests in 2000, the flooding in the autumn of 2009 and the winter conditions of early 2010. So long as it remains the direct responsibility of local and national government there will always be difficulties caused by day-to-day political interventions. Short-termism is reinforced by the system of annual budgeting and a context of competition for funds against many other important public activities.

Reform involves placing the road network—organisationally speaking—at arm's length from government; there are many alternative definitions of what 'the road network' might comprise to which we return shortly. This might simply involve a transfer to a public interest company (like Network Rail) or a sale to private interests ('privatisation'), or versions in between. It might or might not involve the introduction of charges at the point of use ('tolls' or 'road charging'). As we note below, the RAC Foundation would not support those privatisation options that fail to guarantee to improve the level of service for road users.

The objective of policy reform would be to heal the present paralysis of strategy on roads policy and roads funding: to find publicly acceptable mechanisms through which a coherent

long term strategy can be devised together with a means of securing the funding to deliver it, taking into account the realities of the national public expenditure situation.

It will never be feasible to meet all the new demands on the road network by providing new capacity. Nor would it be politically acceptable or good value for money to try. It may turn out that the political process dictates that very little new physical capacity is provided—this has been the case in recent years. There are other strategies which can be (and to some extent are being) pursued, such as maximising utilisation of current road capacity by more tailored and intensive traffic management and by managing demand in various ways. However, parts of our road network are already seriously congested: some motorways are congested every day of the week and work well above their design capacity for much of the time. We will see congestion and overloading extending much more widely across the country and for longer time periods.

Therefore there is a need to:

- find better ways to make use of the capacity we have;
- ensure economy and efficiency in the management and maintenance of the assets; and
- create a means of securing funding to deliver those infrastructure improvements that are good value for money and deemed appropriate in the wider policy context.

Proper account must be taken of all those affected: not only current and future generations of road users; but also general taxpayers; consumers of transported goods; those affected by noise, air pollution, accident risk, climate change; and the landscape and the natural environment.

Above all we must extend our time horizons in planning and securing improvements.

4. Reform of Governance, Funding and Financing

We discuss several distinct concepts in this paper.

4.1 Governance

First, change in governance and administration. This relates to the institutional structures: who owns the assets; who makes decisions about their management, maintenance and enhancement; to what authority are those making these decisions accountable; how are they scrutinised and audited?

4.2 Funding

Second, funding: where does the money come from? Currently most of it comes from central government grant from the General Exchequer (that is, the national taxpayer). The way this cash flow is delivered to the provider could be changed in various ways: dedication (hypothecation) of parts of tax revenues such as VED, fuel duty or local taxes; 'shadow tolls' as used on Private Finance Initiative (PFI) or Design, Build, Finance and Operate (DBFO) roads, where a contractor receives a fee in relation to the number of vehicles that choose to use the facility (this is invisible to the user); area charges (like the London Congestion Charge); actual tolls (like the Dartford Bridge, Birmingham North Relief Road and many French autoroutes and Italian autostrada), or more sophisticated time- and distance-related charges to users.

Governance and funding are intimately related but they are not the same thing. One could be changed without changing the other, although private funding of the entirety of a section of the network would require separation and security of the income stream.

To borrow there must be a competent enterprise with the legal standing and financial capacity to be accountable for the debt.

Many of the changes discussed in this paper would be controversial and difficult to achieve. It may be easier to secure changes in governance than changes in funding so it is important to maintain the distinction.

4.3 Funding versus financing

Finally, there is the distinction—very often confused—between funding and financing. Whereas 'funding' is the fundamental source of resources, 'financing' is about borrowing and lending to adjust the point in time when the capital is available to spend in relation to an available revenue stream. Funding is the primary problem. Once secure ('bankable') funding has been put in place, there are usually several ways of securing financing, but without secure funding there can be no financing.

Shadow tolled, PFI-provided roads bundle together elements of both financing and funding. The private sector provider finances up-front capital investment by raising private monies on the debt and equity markets. However, the funds to service the interest and capital on these borrowings are ultimately furnished by the Exchequer through the monthly 'infrastructure service charges' payable over the twenty to thirty year term of the contract. Ultimately, it is the taxpayer that funds the asset—and this could have been achieved under a number of alternative procurement methods from private sector providers but not necessarily involving such long term contracts.

5. Governance and Trust

A problem that has come to bedevil debates about reform in roads, in relation to roads taxation and other types of charging and public expenditure, is the lack of trust amongst the general public for the political process and for the administrative institutions. In roads there are large sums of money at stake: the average household spends well over £50 per week on motoring and the tax revenues total nearly £40 billion plus VAT p.a. (House of Commons Select Committee on Transport, 2009). Whatever the merits of proposals for change, and even assuming the public fully understand the proposals, there may be opposition because the public feels that the system is not transparent, or that promises may not be kept. The perception is that there are no adequate means to hold government to account.

The problems of public understanding and trust were well illustrated by the reversal of government policy on road user charging. The London Congestion Charging scheme was successfully introduced, but the government later abandoned its policy to introduce a national scheme. That was formulated following a detailed Feasibility Study by the Department for Transport in 2004, but the public either did not understand the policy or were unconvinced that the government would deliver the promised benefits, and the government effectively reversed its policy following 1.8 million signatures in support of a petition against it on the No. 10 website in December 2006 (Glaister, 2007).

5.1 Building support for charging

Whatever the objective success or otherwise of the reforms to the other utilities, public opinion is deeply sceptical of some of the reforms of the type we are considering in this paper, such as possible privatisation and the introduction of road user charges. The perception of the public is a political and social reality. It cannot be ignored. There will be winners and losers. A change in the attitude of a significant proportion of the public would have to be achieved.

There are two obvious problems. The first is the lack of political acceptability for charging by volume of use for something that has historically been regarded as free, since the

replacement of the turnpikes in the mid-19th century. To have a chance of obtaining sufficient public support a new policy must always be presented as a package of measures and never as a change of ownership alone, or the introduction of a new charging regime alone. If there are to be new charges the destination of the revenues must be explicit. It is essential that a significant portion be committed to maintaining and enhancing the road network. Some of the residual should be used to fund an offsetting reduction in conventional road taxes: that will build support from a large number of people who would enjoy an immediate and visible cash benefit. Proposals need to be explicit about the extent to which any residual might be used for other transport purposes and what the net effect is expected to be on the overall public finances, otherwise the public will only perceive the disadvantages of the proposals and regard any charges as 'stealth taxes'.

The majority of people are happy to save money (either their own or the state's) when it comes to public goods and services without giving weight to the consequential deterioration of quality. Some people are more than happy to purchase a time saving by taking a toll road but they cannot be assumed to be the majority. Any solution which saves money for many individuals would help to build support. In the case of recycling a revolution has been achieved in behaviour over the last ten years by education, media advertising and a degree of coercion by changing collection methods. There was a great deal of public scepticism about proposals for roadside household collections which would charge by weight or involve fines for non-compliance with waste separation, but there was a good deal of support for the principle of just making recycling easier. Going with the grain of public opinion and tapping into their goodwill have been more effective than applying pure economic charging principles. A steadily escalating landfill tax has underpinned the transition to recycling in preference to disposal to landfill.

The experience in London, Stockholm and other places has been that public sentiment becomes more favourable to road charging schemes if they have been in operation for a while and concrete advantages—such as reduced congestion and better funded transport—can be seen. This suggests that it will always be difficult to win an *ex ante* referendum on a proposal involving an element of road charging, as the experiences of Edinburgh and Greater Manchester have illustrated.

The best way forward may be to find ways of introducing other elements of the framework which may, in time, show the prize from direct charging more clearly.

5.2 Accountability and transparency

The second issue is that the public must trust that these promises will be delivered in practice and that there are credible mechanisms for audit and accountability. This is one reason that changes in governance and administration are important: the current arrangements fail the test.

Whatever is proposed will be difficult to explain to the public and failure to explain will lead to rejection, as, again, illustrated by the Manchester experience. It is therefore imperative to keep the proposal simple. Other fundamental problems for the Manchester public included there being a perception that it was biased against the car commuter (more numerous than public transport commuters), no compensating reductions in taxes or any other charges and a lack of confidence that anything would be different, or that the authorities could be trusted to do what they said they were going to do.

One response to this is to improve transparency and accountability of governmental institutions and to make them less fragmented. It is crucial to the continued acquiescence to the London Congestion Charge that the legislation insists that all the net revenues be spent on transport within the jurisdiction; that the accounts allow this to be audited; and that the Mayor of London, whose decision it is to have the Charge, has to stand for re-election every four years. In October 2009 Mayor Johnson proposed several changes to the London Congestion Charging scheme to which he can be held to account by the London electorate. The terms of the public debate make this very clear. One of the problems with the unsuccessful proposal to introduce a road charging scheme in the Greater Manchester Area was that the governance arrangements are significantly weaker and more fragmented: there are ten Districts and nothing to correspond with the over-arching legal powers that the Greater London Authority has. This left the initiative with a committee of elected members from the several authorities, advised by officials, with no single elected member being in the constitutional position to carry political responsibility for the scheme.

At the World Road Congress (Paris, 2007) the Dutch minister reported that after two false attempts they planned to introduce overall charging in 2014. He reported that they had included all interests from motoring organisations to the green lobby in an advisory body to achieve maximum support. Press reports indicated (Steen, 2009) that all road and vehicle taxes in the Netherlands would be scrapped in 2012 to be replaced by charges. The whole operation would be fiscally neutral. Interestingly they sold this on the expectation that the overall number of vehicle kilometres travelled would reduce by 15% and the majority of drivers would pay less. There was, however, an ominous reference to a greater use of less congested routes. It seems that this proposal may not survive a recent change of government.

In any reform programme for roads, it is important to start from the public perception that congestion is a serious problem that needs to be tackled and go on to explain how the package of reforms is designed to address the issue. User charging is one element in a balanced package of measures designed to improve conditions on the road network—with the proceeds being used to fund investment in the system. It is not simply an additional revenue-raising tool for government. The establishment of an independent regulator and a consumer body for road users may go some way towards overcoming public mistrust and hostility to the new governance structure and concept of user charging.

6. The Current Situation

There are currently 394,879 km (246,800 miles) of road in Great Britain spread across a number of different classes of road. This compares with 15,795 km of national railway used for passenger travel. The breakdown for roads is shown in Table 6.1 (p. 24).

The motorways and trunk roads are the responsibility of central government and are managed by the Highways Agency in England, by the Scottish Government and Transport Scotland north of the border and by the Welsh Assembly Government in Wales. The remainder of the network is the responsibility of local authorities. The Highways Agency network (and the equivalents in Scotland and Wales) forms the core of the Primary Route Network which also includes the more important A roads. Fifty-eight per cent of the Highways Agency network is motorway or all purpose trunk road dual carriageway, and less than 4% lies within urban areas. The designated trunk road network has been shrinking as roads are 'de-trunked' and between 1993 and 2006 over 2,500 km of trunk roads (18%; DfT, 2007a, Table 7.6) have been transferred to local authority control.

6.1 Recent history

Rates of trunk road construction have fallen markedly since the mid-1990s, as shown in Figure 6.1 (p. 25).

The incoming Labour Government in 1997 placed a moratorium on new road building and followed this by pursuing a much reduced programme. It instituted a programme of 21 multi modal studies to examine integrated solutions to capacity problems in key parts of the strategic road network. The individual studies had steering groups comprising the Highways Agency, Strategic Rail Authority, local authorities, regional development agencies, and other bodies. However, the multi modal studies do not seem to have been effective in delivering solutions capable of implementation.

In 2000, the government published *Transport 2010—the Ten Year Plan for Transport*, an ambitious attempt to develop a long term integrated transport strategy. It envisaged large-

Table 6.1: Road length by type of road, 2007 (kilometres)

Type of Road	England	Great Britain
Motorways	3,011	3,559
Dual Carriageway - Trunk - Principal	 2,630 3,974	 3,487 4,449
Single Carriageway - Trunk - Principal	 1,686 23,985	 5,196 33,611
B Roads	19,963	30,265
C Roads	64,207	84,423
Unclassified Roads	181,983	229,889
Total	**301,440**	**394,879**

Source: *Transport Statistics Great Britain 2008* (DfT, 2008c)

scale upgrading and expansion of the rail network to allow 50% passenger growth and 80% growth in rail freight. Congestion on the roads network was expected to reduce from 2000 levels by the end of the decade with easing of bottlenecks and targeted road widening of 576 km of the strategic road network.

Many of the assumptions on which this was based have since been invalidated by two factors: first, by the escalating costs of operating the existing rail network in the wake of the Hatfield accident and Railtrack administration, which led to the deferral of most of the proposed rail capacity enhancements.

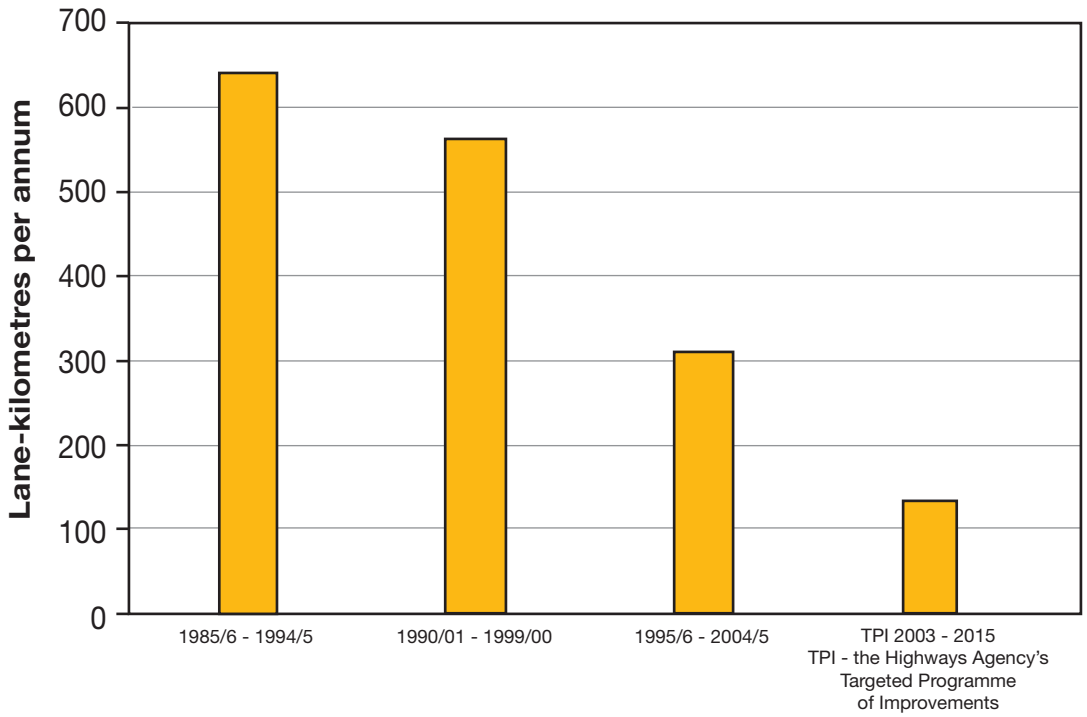
A second factor was the growth in car use arising from the lower real cost of motoring and rising real personal incomes. This was predicted at the time of preparation of the *Ten Year Plan* (Glaister, 1999) and its proposals were manifestly inadequate to deliver the policy.

6.2 Funding and governance frameworks in England

The bodies involved in planning and development of the major road network in England comprise the following:

The Department for Transport (DfT) which has overall responsibility for strategic development, policy and funding.

Figure 6.1: Actual and proposed rates of English trunk road construction



Source: Banks et al. (2007), Figure 2, p.12

The Highways Agency which has delivery and management responsibilities for much of the strategic road network. It has the responsibility and the budget for the maintenance of its network. However, in recent years, for major capital investment projects it has only had direct funding responsibilities for the motorways and the A14. (We discuss increases to its portfolio below.) Funding for the remainder of its network lies with the Regional Development Agencies. The Highways Agency portfolio (maintenance and capital) only contains about 20% of what could be regarded as the major road network.

Regional Development Agencies which develop regional transport plans, now as part of the Regional Plans.

Regional bodies (formed from the bringing together of Regional Development Agencies with former Regional Assemblies) which develop regional transport plans and manage the current Regional Funding Allocation (RFA) process.

Local authorities—county councils and unitary authorities who are responsible for local transport policy in their areas and for maintenance and investment in local road networks.

6.3 Traffic on the Highways Agency's network

Of the 513 billion vehicle kilometres of motor traffic on Britain's roads in 2007, 164.6 billion (32%) were on trunk roads (DfT, 2007b, Table 1.4). Whilst the proportion of road traffic using trunk roads has changed little in recent years, the de-trunking of some less busy parts of the network and rising traffic levels generally have meant that average flows on the trunk road network have increased substantially. Average flows on motorways increased from 31.5 thousand vehicles a day in 1980 to 77.5 thousand in 2007—more than doubling—and it can exceed 150 thousand vehicles a day on the busier sections. On all purpose trunk roads the growth has been from 10.2 thousand to 20.4 thousand vehicles a day: again doubling.

Trunk roads carry a high proportion of commercial traffic with 12% of motorway traffic and almost 10% of all purpose trunk road traffic comprising lorries, compared with just over 3% on the rest of the road network (ibid.). Moreover, trunk roads carry a higher proportion of the heaviest vehicles with 54% of lorries being defined as heavy (rigid vehicles with four or more axles and articulated vehicles with five or more axles) compared with only 28% on other roads (DfT, 2006, Table 8.1). This is as a result of there being both more heavy vehicles using trunk roads and these lorries travelling the longer distances suited to motorways and all purpose trunk roads. Since 1980, when they were first permitted on Britain's roads, the number of lorries over 33 tonnes Gross Vehicle Weight has increased to about 120,000 and now comprise 27% of the total number of lorries (DfT, 2007c, Table 4.2). Average lorry journey lengths have increased by 28% since 1980 from 67 km to 86 km (DfT, 2007a, Table 4.1).

Traffic flows vary significantly on different parts of the network. Volumes are highest in the central core of England with the Greater South East (London, South East and part of the East of England) having some of the greatest flows. On rural A roads a similar situation is to be found but the North East and the East of England moving up the rankings reflects the greater role of all purpose trunk roads in carrying traffic in those areas.

The rapid increase in van movements (160% since 1980 and 40% in the last ten years, DfT, 2007b, Table 1.1) has also affected trunk road traffic with the percentage of van traffic on motorways and all purpose trunk roads growing from 6% in 1980 to over 12% currently (DfT, 2007b, Table 1.4).

6.4 Management of the Highways Agency's network

Trunk roads are generally in good state of repair with the index of defects for all purpose trunk roads in England and Wales improving by 28% between 1984 and 2001 (DfT, 2006, Table 3.1).

Britain's motorway network is one of the most intensively managed in the world. In England the Highways Agency's National Traffic Control Centre and seven regional control centres collect traffic data from over fifteen hundred buried electronic loops and Automatic Number Plate Recognition systems. From this queues are also detected. The Highways Agency provides information to road users with its own Variable Message Signs, its website and information points, via radio messages and on the Highways Agency's traffic update phone number. 'On road' incidents on the motorways and the A12 are dealt with by the Highways Agency's fifteen hundred traffic officers as well as the local police to minimize congestion and clear up after traffic incidents.

Plans for the strategic road network under the 'Targeted Programme of Improvements' have suffered from difficulties experienced by the Highways Agency in delivering road schemes. Following a series of cost increases for individual road schemes, the DfT commissioned a review (The Nichols Review, 2007) which made a series of recommendations concerning management and planning of the roads programme and governance arrangements involving the allocation of roles and responsibilities between the department and the agency. This review also contained recommendations for improving project management capability within the agency.

The network is imputed a value of £85 billion in the Highways Agency's accounts (Highways Agency, 2008), though the basis for this is unclear and it may bear no relationship to any sale value. It compares with an estimated value of the regulatory asset base for Network Rail of £28.6 billion (England and Wales) in April 2009.

6.5 The Highways Agency's functions

As an executive agency of the DfT, the Agency currently has no strategic role. The DfT retains overall responsibility for strategy towards the Highways Agency network while the Agency is seen as a delivery body both for DfT and, so far as major schemes are concerned, of those parts of the Highways Agency network not in the Strategic National Network. Moreover, its current focus is on managing the network more intensively through the provision of information, monitoring performance and the provision of traffic officers to deal with the aftermath of around 850 incidents that occur on the network every day.

Unlike Network Rail, the Agency is totally dependent upon government funding, with budgets set annually. It has neither independent powers to borrow on the financial markets nor a revenue stream from users. Unlike regulated utilities or Network Rail, it has no security over medium term funding. It is against this background that the Agency's 2008–2009 business plan was for one year only. Finally, the accountability of the Agency is to the Department—rather than members, shareholders or customers.

The 2008–2009 business plan (Highways Agency, 2009) set out how the Agency intended to 'help customers on their journeys on the strategic network in the coming year' and describes its key aims as being 'to tackle unreliability, improve safety and provide better information to help road users make better decisions as they plan their journeys'. It is hard to see a utility company putting this forward as its response to demand growth and supply constraints. Elsewhere, in the plan, the Agency describes the key challenge for the next three years as being to find 'the right balance between measures to make better use of the existing network and providing targeted increases in capacity where they are really needed'.

On increasing capacity, the plan sets out limited programmes of national and regional major roads projects built around a three-phase project control framework covering *options, development and construction*. In relation to national major roads programme, the schemes are managed on behalf of the Department who also fund the schemes. In relation to regionally classified roads, funding comes through the Regional Funding Allocation process (described below)

6.6 Funding plans for strategic roads

Against this background, plans were set out by the then government in *Roads—Delivering Choice and Reliability* (DfT, 2008a) to invest up to £6 billion in the period to 2014 on major improvements to the strategic road network in a programme designed to support economic growth, improve inter-urban journey time reliability, support housing growth and improve road safety. Over the three years up to 2010–2011, the plans were expected to deliver an extra 128 lane-kilometres of extra capacity to the strategic road network. In addition, further investment in strategic regional routes would take place through the Regional Funding Allocation process.

A reappraisal of schemes in the roads programme was completed in early 2009, following feasibility studies undertaken by the Highways Agency on hard shoulder running on the M42 and new traffic management technology. In a paper published in January 2009, the DfT described the conclusions of this work and how it planned to apply the concept of 'managed motorways' progressively across key parts of the network. The work carried out suggested that hard shoulder running would provide a feasible alternative to motorway widening, saving on average around 40% of capital costs.

The January 2009 paper goes on to list a revised set of schemes due to be completed in 2008–2009 and 2009–2010 along with schemes on which work is expected to commence during these two years. It also sets out a provisional list of schemes on most of which work was expected to start over the following two years (2010–2011 and 2011–2012) along with a list of other, mostly hard shoulder running, schemes on which construction would begin by 2015. When fully completed, the planned schemes would

deliver 832 additional lane-kilometres to the national strategic road network, of which 512 lane-kilometres would be through mostly hard shoulder running. The funding for this programme was through the £6 billion announced in *Roads—Delivering Choice and Reliability*. Whilst welcome this would have been far short of the 592 lane-kilometres each year that *Roads and Reality* (Banks et al., 2007) argued could be justified.

Individual schemes in the programme remain subject to the outcome of detailed studies including value for money and completion of statutory planning procedures. It was announced that planned enabling work, most of it on extending the scheme of actively managing motorways and allowing running on the hard shoulder at busy times, would be brought forward as part of a fiscal stimulus package.

Despite these developments, the five-year programme for the strategic road network lacks the degree of output commitment that we see on railways through the High Level Output Specification approach (see below). Cost overruns on parts of the programme will be at the expense of other schemes and the budget for the Highways Agency remains vulnerable to cuts.

Moreover, at a time when consideration is being given to the case for new high speed rail capacity through construction of a network of new lines, the focus in relation to roads remains one of getting better use out of the existing network through a combination of opening up hard shoulders and other demand management measures (such as lanes where single drivers are not permitted), rather than examining the case for new roads or significant capacity increases on existing links.

6.7 Regional funding allocations

Within the English regions, the Regional bodies currently have responsibility for developing regional spatial strategies and regional economic strategies. The spatial strategy covers a fifteen to twenty year horizon for a region and identifies, so far as transport is concerned, priority schemes.

The context for these strategies is a system of regional funding allocations which the government introduced in 2004. Its purpose was to integrate the regional economic strategies developed by the Regional Development Agencies with regional transport and spatial development strategies, all within a framework of indicative long term funding guidelines for each region.

The aim was to achieve better coordination of plans for housing, economic development and transport and to provide funding allocations at the regional level for three years, together with longer term planning assumptions. The transport allocation for the first three years 2005–2006 to 2007–2008 was set to increase from £708 million to £738 million. Ten year 'indicative' budgets were also set. For London, there is a separate funding settlement.

With the first round of allocations having been made in 2006, the regions had to submit updated advice to government in February 2009—and, as a consequence of this 'refresh' exercise, further three year allocations would be made with indicative budgets extended a further seven years until 2018–2019.

Funding of large schemes (over £5 million) on regional major roads comes through these Regional Funding Allocations. In drawing up their advice, Regional Development Agencies (RDAs) consult with the Highways Agency who will have the responsibility for delivering these schemes. Ultimately 90% of the funding is met by central government through grants to the RDAs with the remainder met locally. Local authorities carry the risk of any overspend.

Some £3 billion of funding for strategic regional roads in the period to 2015–2016 has been provided through the Regional Funding Allocation process (ibid.). Schemes to be completed over the three years from 2008–2009 are expected to add 80 lane-kilometres to the regional road network.

As part of the regional planning process, Regional Development Agencies may commission studies to demonstrate the economic benefits of new schemes. Thus in the Eastern Region, the East of England Development Agency have commissioned a study to demonstrate the economic benefits of a new dual carriageway between Braintree and the A12.

6.8 Local transport planning and funding

The final piece in the jigsaw concerns the arrangements for funding road maintenance and local transport schemes. All revenue funding is provided through Revenue Support Grants to local authorities. For capital, there is currently an annual £1.2 billion block grant, half for road maintenance and the rest for integrated transport—including bus 'park and ride' and road safety initiatives. Capital allowances assume that local authorities finance investment in schemes through borrowing plus developer contributions.

There are also Local Transport Plans produced by local authorities providing an integrated approach to transport over a five-year planning horizon. The second round of these plans covers the period 2006–2011.

An annual Local Authority Road Maintenance survey is carried out by the Asphalt Industry Alliance (AIA) on local authority controlled roads in England & Wales. It involves collation of data collected from local authorities. The 2009 survey (AIA, 2009) points to the deteriorating condition of the local authority road network and estimates a £8.5 billion maintenance backlog needed to bring the network up to steady state. This compares with a £2.7 billion budget allocation for road maintenance in 2008–2009. The damage caused by the unusually hard winter of 2009–2010 is likely to have made this situation worse.

There are similarities with the position on water and rail infrastructure, and pre-privatisation—although only in the case of water was provision made for addressing this backlog at the time of privatisation.

6.9 Government's strategic role

There is an opportunity for the new government to develop its strategic role in relation to the road network. The previous government, having accepted the recommendations of Sir Rod Eddington's *Transport Study* (2006), recognised the need for a more integrated approach to planning road and rail infrastructure. In October 2008, it set up the National Networks Strategy Group, chaired by the then Minister of State, Lord Adonis, to direct work on rail electrification and on priorities for investment in the motorway network. In January 2009, it published a series of documents detailing a package of transport investments covering road and rail infrastructure and additional airport capacity at Heathrow. In one of these, plans were set out for motorways and major trunk roads (DfT, 2009).

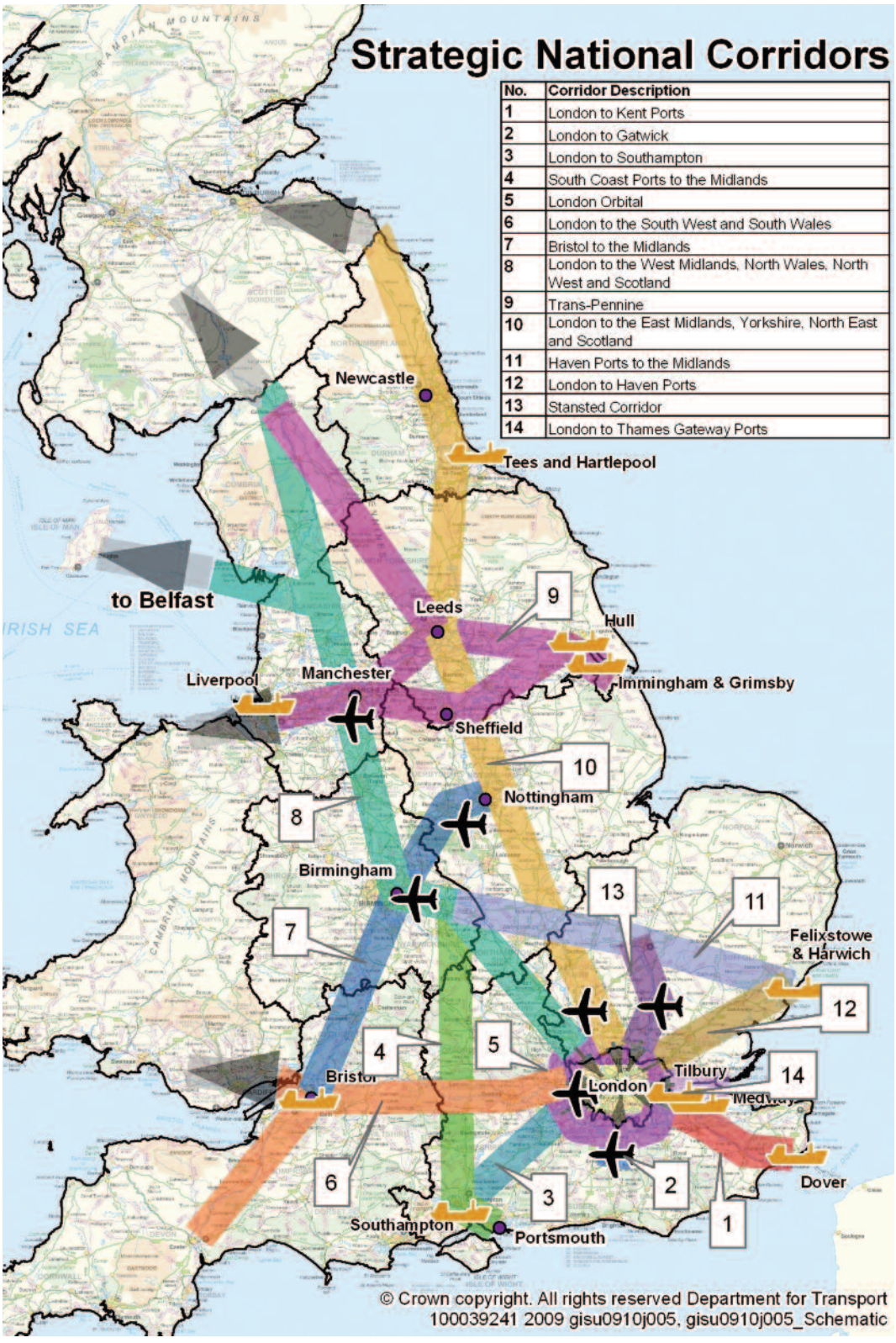
The DfT also embarked on a consultation in late 2008 on planning for 2014 and beyond (DfT, 2008d). In this document, the government proposed taking the lead in generating options for those route corridors that link key centres of population to each other and to the busiest international gateways.

Figure 6.2 (p. 32) identifies 14 strategic national corridors and states the priority of improving the predictability of end-to-end journey times on these routes. The focus on these routes is cross-modal and work will be carried out with both the Highways Agency and Network Rail in addition to coordinating activity for the next High Level Output Statement for rail (covering the period 2014–2019) which the DfT is due to issue in 2012. It is also intended to improve the basis for planning on city and regional road systems by providing, for each five-year period, a 'clear indication of the level of funding available for regional and local transport investment and delivery', together with ten year indicative funding allocations.

The consultation exercise on *Planning for 2014 and Beyond* with its development of the previous government's concept of Strategic National Corridors contains proposals for re-categorising a number of routes currently designated as roads of regional importance as roads of national importance. From 2014, it was proposed to re-define the Highways Agency national network to match the 14 strategic national corridors. This would involve re-categorising some 13.5% of the total Highways Agency network—and these would be roads for which the government would assume direct strategic planning and funding responsibility.

The case for the new government re-defining the national network along these lines would seem compelling. The question is why such changes, which seem linked to the start of five year period from 2014, should not be brought about sooner? The growing

Figure 6.2: Strategic national corridors



Source: DfT (2008d)

backlog of maintenance expenditure and deteriorating asset condition on the local authority road network is a further factor which would merit a review of the allocation of responsibilities for the road system between the Agency and local authorities—particularly in the context of the type of reform package proposed in this paper.

A key driver for these developments is the Planning Act 2008 which established the Infrastructure Planning Commission as a new authority responsible for giving planning consent to nationally important infrastructure projects. The Act provides for relevant government departments to produce national policy statements which, in the case of DfT, would need to include new motorways, high speed rail links and airport runways.

6.10 Summary

Taking the national road network in England, it is evident that the approach to planning investment in order to meet future demand has been very different from that adopted in both utilities and railways. The Highways Agency is accountable to the DfT but currently lacks strategic responsibility for planning future development of the network in the way that Network Rail has. While the Agency's responsibilities include delivering a programme of widening schemes on strategic roads over the next three years, its primary focus is on better traffic management and control of the motorway network to improve journey reliability. Moreover, compared to rail, the commitment to deliver the programme of schemes for completion by 2014 is weaker.

Schemes are more susceptible to delay for planning reasons; cost overruns on particular schemes are likely to delay start dates for other schemes in the programme; and developments in the 'managed motorway' concept may lead to further changes in the programme.

There is no independent regulator for determining funding requirements, efficiency improvements and outputs for the Highways Agency and no 'regulatory contract' of outputs to be delivered, as is the case in water and rail. The Highways Agency accountability is to the DfT, rather than to an independent regulator and to its customers or users.

Finally, fragmentation of ownership and management of the road network remains an issue. The Highways Agency remains responsible for only 2.5% of the total road network for England for which there is a multiplicity of local authority providers. Although approaches have been developed for planning improvements to regional road networks through the Regional Funding Allocation process, these processes lack the necessary transparency.

7. Three Possible Geographical Scopes

We now define three broad options for the geographical scope of a new body to administer the road network. The duties and standing of a reformed roads body are discussed in a later section.

Scotland and Northern Ireland have clearly distinct, devolved administrations. Wales is rather different: there is no good South/North route in Wales and much of this traffic will use roads over the border, in England. This would become an issue if charging in England put pressure on unsuitable roads in mid-Wales. However, in this paper, for simplicity, we restrict our attention to England as a starting point.

There are three possible groupings:

- motorways; or
- Roads of National Importance: the motorways plus those parts of the Highways Agency network that will be classified as 'roads of national importance' under the new proposals; or
- Strategic Road Network: the whole of the Highways Agency network plus, possibly, other major roads currently under the responsibility of Local Authorities.

For administrative and management purposes it may well be desirable to create some kind of internal regional organisation as we see in the case of water and energy distribution networks. A regional structure would allow comparative benchmarking which is a considerable advantage, but it might imply divided responsibility for some major motorways and trunk routes. We do not consider regional sub-divisions in this paper.

7.1 The motorways

There is advantage in dealing with something that is established and well understood. The motorways are both physically and legally distinct. They form one obvious category.

It would be possible to sub-divide this into individual motorways enterprises (e.g. the M2) or groups of them (e.g. the M2 and M20), especially as a transitional arrangement.

7.2 The roads of national importance

The consultation exercise on *Planning for 2014 and Beyond* (DfT, 2008e; confirmed in April 2009) with its development of the concept of Strategic National Corridors, contains plans for re-categorising a number of routes currently categorised as roads of regional importance as 'roads of national importance'.

This forms a natural second possible category: roads of national importance (RNI).

7.3 The strategic road network

There is currently no official definition of what constitutes the nation's complete strategic road network (SRN)—other than the Highways Agency's portfolio of motorways and trunk roads, which includes both 'roads of national importance' and 'roads of regional importance'. It only represents one fifth of what might be described as the major roads.

There is a "Primary Route Network" (PRN) which comprises the motorways, trunk roads and a number of other principal roads. "The Primary Route Network designates routes between major settlements and ports/airports across the UK, and is the preferred routing for long-distance traffic, particularly goods traffic, between those destinations. On road directional signs, PRN routes are indicated with a dark green background and motorways are indicated with a blue background" (DfT, 2010). However, this contains a substantial quantity of roads that would probably remain under the control of local highway authorities.

For the purposes of this paper we use the phrase 'Strategic Road Network' to refer to a category of roads, not currently precisely defined, that could be larger than or equal to the Highways Agency's current portfolio and constitutes those roads that could reasonably be said to be assets of strategic importance to the effective performance of the national economy. It might be the Highways Agency's current portfolio augmented by some of the major roads that have been "de-trunked" (transferred to local authority responsibility) in recent decades. In principle it might also include some of the major roads that have always been local authority roads.

7.4 The problem of the interfaces with local authorities

Whatever scope is chosen for reform of the administration of the national road network there could be problems with the interfaces with local highway authorities. This is, of

course, an issue in most areas of public administration. In particular, it arises with the rail network, as illustrated in the tension between the Greater London Authority and the Department for Transport over control of the London commuter railway.

London also illustrates the difficulties that have to be resolved if parochial interests obstruct the efficient management of a proper strategic network. The Greater London Authority Act 1999 left highway authority duties with the 33 London boroughs, under the control of representatives of local residents, with the exception of relatively few major roads. The Greater London Authority is responsible for the Transport for London Route network which accounts for only 5% of London's roads (although it carries one third of the traffic). This has made the execution of a London-wide, strategic roads policy difficult.

Plainly, these problems become more severe as one moves down the hierarchy that we have just defined. The motorways are mostly already clearly defined as a national responsibility. The RNI are all the responsibility of the Highways Agency so working relationships between central and local government are already established. However, even here the changes in policy that would go with the change of governance, and possibly charging, could cause friction. Most obviously, if user charges were to be implemented on the RNI (but not on the local roads), most of the traffic paying these charges would in fact be local. There would have to be clarity about whether the revenues would be shared between the new national authority and the relevant local authorities.

Similarly, proposals for physical investments to enhance the infrastructure would raise local planning and transport policy issues—which arise in any case under the current Highways Agency and which may or may not be alleviated by the new arrangements under the Infrastructure Planning Commission and the National Policy Statement for roads.

These are also issues that have to be dealt with by the national infrastructure networks for the privatised utilities—telecommunications, gas, water and electricity. However, their processes are long-established and familiar to the public. It may well be that a roads authority would have more difficulty: the RNI would have parts of its territory in or near to centres of dense residential population unless it stopped short at an urban boundary.

These problems would be considerably magnified for the SRN.

Such considerations lead us to conclude that of the three categories we have defined, the motorways would be the most practical, at least in the first instance. Their route length in England is about 3,000 km. This is only a small part of the SRN by route length but the motorways carry about one fifth of all the vehicle kilometres: more if one weights heavy vehicles in line with the amount of road space they consume.

However, there is a consideration pointing towards coverage of a broader set of roads. If it were intended to implement road user charges it would, as we have argued, greatly help acceptability if there were an offsetting reduction in fuel duty in addition to a

commitment to improving the service offered to the road user by better maintenance, better management and selected capacity improvements. The motorways are sufficiently pervasive that it might be plausible to offer a reduction in all national fuel duties in return for the imposition of charges on motorways alone: the analogy with the French autoroutes and Italian autostrada may be helpful here.

The disadvantage of this limited approach is that much road congestion occurs on roads that are not motorways, so if policy were ultimately to be limited to the motorways much of the capacity problem we have outlined would remain untreated. For these reasons we do not reject the option of the RNI.

A key question concerns the process for determining the high level output specifications for railways and an equivalent for roads. One would like to see a more transparent process by which the Highways Agency, Network Rail and other stakeholders, such as local authorities, Customer (or Passenger) Focus and user groups, provide input into these statements. The regional planning process through the Regional bodies could also be opened up and made more transparent.

To the extent that part of the Highways Agency's role is to deliver projects of regional significance for local authorities, it will be important to strengthen the relationship between the Agency and local authorities for whom they act as the contractor for 'major schemes'. This would probably come about as part of a wider review of the regional planning system.

8. Lessons from the UK Regulated Utilities

The 'standard' UK model for regulated, privatised utilities may, or may not, be judged appropriate for roads, but there are certainly useful lessons.

For the old nationalised industries (supplying telecommunications, gas, electricity, water and the railways) the response to inefficient production, poor quality, inadequate transparency, poor accountability and the consequences of frequent political interference has been to create new entities outside government departments. These have clear legal powers and duties. In many cases the companies were fully privatised, that is, the assets were sold to create privately owned, for-profit companies. They are subject to independent, specialist regulatory bodies.

This system removes the industries from the day-to-day turbulence of national or local politics, creates transparency and thus facilitates the re-establishment of the public's trust.

8.1 Regulation of the privatised utilities in England

The regulators minimise policy and political risk to investors, so as to reduce what would otherwise be a higher cost of capital. Independent regulation to protect the public interest, to give certainty to the supply industries and to provide protection to individual consumers has been critical to success.

Regulators have an important role in protecting the interests of customers and users both in setting revenue requirements (and price caps) every five years and in monitoring companies' performance—and taking action where this falls short. Following a recent review of economic regulation of airports, it was proposed to give the regulator (the CAA) a new primary duty to promote the interests of passengers—thereby putting customers at the heart of regulation.

It is well known that regulators are there to protect the interests of customers. The public is less familiar with the fact that they also operate under a duty to ensure that companies are able properly to finance their functions. In other words a company which behaves in an economic and efficient manner (as judged by the regulator) will be allowed an adequate financial rate of return on its assets. In turn, companies operate under a licence which defines a range of supply and other obligations, and behaviour requirements.

Regulators undertake regular five yearly reviews of investment requirements, efficiency and outputs and set price limits which provide incentives for companies to outperform over the next five years. The starting point was the proposition—now proven in practice—that the nationalised utilities were not cost efficient.

Although appointed by ministers, independent regulators operate within a set of statutory duties and are answerable to the courts rather than to ministers. Regulators are subject to direction or guidance by the government only to the extent that this is provided for by relevant legislation. In general, this provides for them to have regard to the government's social and environmental policies. A number of these duties have been augmented in recent years. Thus, Ofgem, the energy regulator, is required to support long term energy strategies set out in the 2003 Energy White Paper. The 2003 Water Act also placed an additional duty upon Ofwat to contribute to the achievement of sustainable development.

Other recent developments include the stronger focus on longer term frameworks for investment planning which are necessary to meet challenges such as climate change and flooding risk (water) and, more generally, are appropriate to industries with long lived assets.

Water companies are now required to produce twenty-five year water resource plans setting out how they plan to meet future customer demands. This is a particularly interesting precedent for national roads.

A full privatisation of a collection of highway assets is only one of several possible changes in corporate structure. There are many variants in existence and there are a number of arrangements across a spectrum from public ownership and control to full privatisation. These are summarised in Table 8.1.

8.2 The company limited by guarantee

Glas Cymru (Welsh Water), purchased from Western Power Distribution following the failure of Hyder in 2001, adopted an innovative corporate and financial structure. A low-risk, single purpose company, it was able to use low cost bond finance and thereby reduce its financing costs. Financial reserves are built up through regulatory outperformance, which are then returned in the form of customer dividends. Both operational activities and the capital programme are out-sourced to specialist contract

Table 8.1: Alternative corporate models in UK regulated utilities

Model	Examples	Accountability	Financing
1. Public listed company	Centrica National Grid Severn Trent United Utilities BAA (1988-2006)	Shareholders	Conventional debt and equity
2. Privately-owned	AWG (Anglian Water) Thames Water BAA (2006 to date)	Pension and infrastructure fund owners, private shareholders	Debt and (private) equity
3. Public interest company (company limited by guarantee)	Welsh Water (Glas Cymru) Network Rail[1]	Members	Debt and bond finance plus retained earnings
4. Statutory corporation or Government-owned company	Scottish Water Northern Ireland Water[2] Royal Mail	Government as shareholder and policy-maker	Public borrowing
5. Privately-owned businesses with Government stake[3]	NATS (air traffic control)	Public and private shareholders	Equity (both Government & corporate) and debt[4]

1 Network Rail also receives network grants from DfT.
2 NI Water receives subsidies from the Department of Regional Development.
3 NATS Holdings Ltd—the holding company for provider of air traffic control services—is part owned by a consortium of airlines (the Airline Group) who own 41.9% of the shares; the Secretary of State for Transport owns 48.9%; BAA plc 4.2% with the remainder owned by an employee trust.
4 The financial re-structuring of NATS in 2003—brought about by the downturn in business following 9/11—involved additional equity investment of £65m each from BAA plc and the Government.

Source: Author's own

partners. Elements of this model were later adopted for Network Rail. Glas Cymru and Network Rail are Companies Limited by Guarantee. There are no shareholders and, formally, accountability is to a number of Members. Arguably, in both cases the number of Members is so large and diverse that they cannot create effective governance and the real accountability—in so far as there is any—is to the bondholders, the regulators and the Welsh Assembly and UK government which are effectively standing closely behind the debt and which, in the case of Network Rail, now provide substantial direct funding.

Recent years have also seen the adoption of conventional regulatory frameworks to publicly-owned utilities, notably Scottish Water, Northern Ireland Water and Royal Mail. To varying extents, these apply similar financial and economic disciplines to those of conventional privatised utilities, although they remain reliant upon public borrowing and the incentives are blunted. A further alternative with much the same effect is the long term concession.

8.3 The public benefit corporation or trust

The public benefit corporation is a common arrangement in North America and other parts of the world. As noted in Wikipedia it is:

> "a public corporation chartered by a state designed to perform some public benefit … [P]ublic-benefit corporations resemble private non-profit organizations, and take on roles that private corporations might otherwise perform. These corporations often operate in heavily regulated industries, such as broadcasting and transportation."
>
> The entry in Wikipedia catalogues the large number of infrastructure public benefit corporations in North America and elsewhere.

An example is that of the public corporation or public trust (described in more detail in Glaister et al., 2000). This concept has a long pedigree in the UK going back to 18th century turnpike trusts. More recent examples include a number of English airports, trust ports (including Dover), the Port of London Authority (the original for the North American model as exemplified by the Port Authority of New York and New Jersey, created in 1921, that runs most of the regional transportation infrastructure, including the bridges, tunnels, airports and seaports, within the New York–New Jersey Port District) and the London Passenger Transport Board between 1933 and 1948. Such trusts are established by act of Parliament and are able to issue bonds to finance capital investment, secured by revenue streams from their activities. They are typically directed by independent boards of trustees. Trusts can be granted many of the characteristics of utilities. There are also similarities with modern infrastructure funds particularly when these are tied to the operation of specific infrastructure components such as airports or toll roads.

However, the independence of public trusts can be significantly weakened. Some years ago the Office of National Statistics (ONS) classified a number of the trust ports to the public sector because it concluded that the Secretary of State for Transport exercised a degree of control over them through his statutory powers (and obligations) to appoint a number of their Board members. As a result the trust ports' new borrowings score against the Department for Transport's permitted borrowing. The Department for Transport had the same problem with the ONS classification of London & Continental Railways because of the guarantees which were given. If the Secretary of State were to have a degree of control

over any new roads body—including in terms of appointments—such that its private financing counted as public expenditure, then some of the objectives of governance reform might be defeated.

8.4 The High Level Output Specification for the railways

The 2004 White Paper *The Future of Rail* introduced a series of structural changes. Accordingly, in July 2007, the government published a new White Paper *Delivering a Sustainable Railway* setting out:

- a High Level Output Specification (HLOS) for improvements in safety, reliability and capacity the government wished to buy in the period up to 2014;
- specific programmes of investment to be undertaken in the period up to 2014 which will deliver benefits beyond 2014; and
- a Statement of Funds Available (SoFA) for these improvements.

The White Paper envisaged some £10 billion of investment in enhancing network capacity between 2009 and 2014 to accommodate passenger growth and reduce train overcrowding, with total government support (investment and operating subsidy) for the rail industry of more than £15 billion. It was against this background that the independent Office of Rail Regulation (ORR) conducted their periodic review of Network Rail outputs and funding.

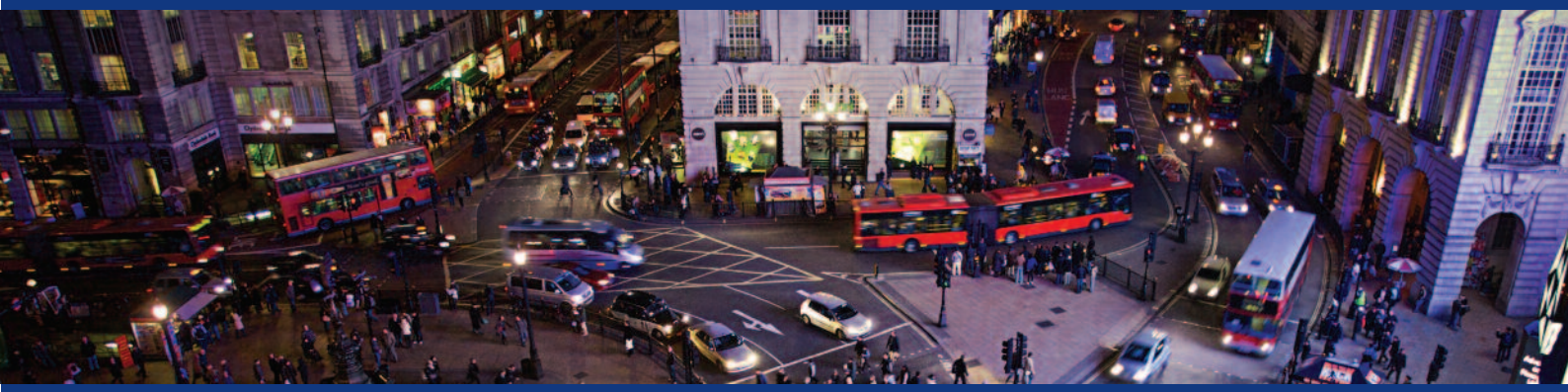
Whilst a longer time horizon for this process would be better, the underlying principle is a good one and the system is much improved on what went before. The government is stating in the HLOS what it expects from the railway and in the SoFA the amount of taxpayers' funds it is willing to make available to deliver it. The ORR ensures they are consistent. There is therefore a coherent view about the future growth in rail traffic to be accommodated, and a commensurate level of physical investment and the balance of funding between rail users and taxpayers—just as is now the case with the water industry.

Radical new proposals such as high speed railways can and should be judged in this framework: are they a good way of allocating the funds available for railways and what would be the implications for other rail investments? This would ensure that they are no more likely than other rail projects to usurp funds for road schemes or other items of public expenditure that would have shown a better return.

Comparable processes are in place for the other regulated utilities, the main difference being that affordability in gas, electricity and water is generally assessed simply in terms of customers' willingness to pay higher charges in return for improved services whereas for rail affordability also applies to the level of Exchequer support for the network.

A coherent framework of this kind is sadly lacking in the case of roads. Whilst the

approach for the railways has considerable merit, it is against a background of a rail network which is dependent on public funding. The road network as a whole could be made financially viable which may lead to different considerations. The issue is who has the primary responsibility for taking a long term, strategic view on the needs to be met and how to meet them. The power and water industries may be better comparisons.



9. Performance Measures

Whether provision remains with an executive agency, a regulated, privatised utility or some other type of organisation, management-orientated performance measures or targets need to be matched by monitoring of users' satisfaction—a point recognised by the utility regulators. We have seen the development of defined performance standards and levels of service across the energy, water and telecoms sectors. Over time, they have led to significant service improvements and levelling up of performance across companies.

Measuring the performance of the road system is more challenging than for utility services or railways. In particular, because trains operate to timetables, it is more straightforward to measure their performance in terms of reliability and train delays.

For the 2007 Comprehensive Spending Review, the DfT was given a Public Service Agreement (PSA) to deliver reliable and efficient transport networks that support economic growth. One of the four indicators used to measure success was reliability using a measure of average vehicle delay on the slowest 10% of journeys on a selection of major roads. The baseline set was the year ending March 2008 and the measure is to be monitored annually up to the year ending March 2011. Final figures for the year ending August 2008 showed an average vehicle delay of 3.68 minutes on the slowest 10% of journeys—a 6.9% improvement from the 2007 Comprehensive Spending Review baseline year.

Under the Department's Public Service Agreement, local authorities for the ten largest urban areas are also required to set congestion targets for 2010–2011 to improve person journey times on city transport networks.

However, the scope of these targets remains limited as does their visibility. They are so heavily averaged over times of day, across location and over time that they give precious little information to the end user relevant to their circumstances; they do not relate closely to users' own experiences of the road network. By contrast, figures for train reliability are regularly posted on stations and the relative performance of train operators published on the Office for Rail Regulation Internet site, as is the case for water companies.

Customers experiencing performance failures by utilities can also expect cash compensation—such as through the Guaranteed Standards scheme for water customers, or compensation arrangements for rail passengers experiencing major delays.

For road users, there are no guaranteed standards or compensation arrangements for delays incurred. Unlike railways, there appears to be no systematic attempt to measure the cost of delays or to attribute a value to them even though, with the frequency of serious incidents on the network, road users experience a greater risk of extreme delays.

Whether or not there is reform, the present approach to measuring performance of the strategic road network should be developed further. Under a comparable regime to that applied to the rail network, performance could be measured on different parts of the network (routes or lines) and delays attributed to a range of causal factors. The publication of route-based performance information could also bring wider benefits. Published information on traffic speeds, frequency of delays and accident rates on particular routes would help inform the debate about investment priorities and assist those with a direct interest—including local authorities and user groups—in advancing a rational case for measures to address problems of severe congestion and safety risk. For instance, an estimate could be made of the proportion of the network that was falling below acceptable standards (using, say, three categories of service standard) and even an idea of the investment backlog to put it right. This was an important part of the case for the restructuring of the water industry. Something of this kind would need to be simple enough to be disseminated and to capture the public imagination.

10. A Consumer Council for Roads?

While there is currently no direct relationship between road infrastructure providers and customers through charging, there is and there would remain an important, indirect relationship through road and fuel taxation. Against this background, a new consumer body for roads would also serve to strengthen the accountability of government and local authorities to road users.

An element of the framework for privatised utilities was the establishment of systems of sector-specific customer representation. Their role was to be customer advocates for these industries and to protect the interests of vulnerable consumers. Recently, three of these bodies (Energywatch, Postwatch and the National Consumer Council) have been brought together in a new cross sector organisation, Customer Focus. Water and railways continue to have sector-specific customer representation.

Passenger Focus (the operating name of the Rail Passengers Council) now has a remit which covers rail and buses and will extend to civil aviation. If it were to take on road transport then it would effectively become the statutory voice of the travelling public across all modes in England. Passenger Focus does not cover rail freight, will not be covering air freight and by extension would not cover road freight.

However, Passenger Focus already has a wide span of responsibilities and we doubt whether it could be effective as a voice for the road user. The task would be very much larger than its current ones and would likely overwhelm the present body. Therefore as part of any reform package there is a strong case for introducing a Consumer Council for Roads—or Road Users' Forum—to provide an effective voice for road users and to hold providers of highway services to account.

One issue for consideration is whether a single new body could reasonably

represent the interests of both car users and commercial road users, including heavy goods vehicles. Consumer bodies typically represent the interests of domestic customers (and passengers) and, in the utility sector, there exist separate trade bodies for commercial organisations (e.g. the Major Energy Users Group).

11. Efficiency

In recent years, there has been criticism of the performance of the present Highways Agency and the efficiency with which it delivers new road schemes and manages highways maintenance (the Nichols Review, 2007; DfT, 2007d; National Audit Office, 2009). This has echoes of the criticisms about the efficiency of the old nationalised industries. When the nationalised industries were privatised they generally managed to achieve larger efficiency gains than had been anticipated—which was one reason that their share prices rose more than expected. On the other hand most of the activities undertaken by the Highways Agency are already procured from private sector providers under competitive tender. A portion of their network is maintained under long term Private Finance Initiative arrangements. Whilst there could be cost efficiencies in design, specification and procurement, it is not safe to assume without careful further research that there are substantial extra efficiency gains to be won.

Notwithstanding this, any reform should seek to create incentives and establish an oversight of economic and effective delivery.

12. Road User Charges

12.1 The need for funding

All future governments will face problems in finding adequate public funds for the maintenance and enhancement of public infrastructure. Further, the weakness of the capital markets has made it harder for government to procure private capital through off-balance-sheet devices such as the Private Finance Initiative and Public Private Partnerships.

With substantial expenditure deficits overhanging the next decade, no means of funding transport should be ruled out. Otherwise we face the prospect of very little investment in roads, especially if the current appetite for investing in railways (including High Speed Lines) lays a prior claim on what meagre funding there is for transport.

12.2 Road capacity from better management

Allocating more resources to day-to-day traffic management can make an important difference: for example making more staff and police available to clear up incidents quickly; enforcing reduced speeds in congested conditions (as with the Active Traffic Management schemes currently being extended from the M42 to other motorways); ramp metering; sophisticated traffic signalling systems; speeding up and better managing road works. But these things all require increased current and capital expenditure.

12.3 The many studies of road user charging

The other potential tool is the use of charges, ranging from tolls on a selected road to a national scheme of substitution of some or all of Vehicle Excise Duty (the annual tax disc) and fuel duty, by a carbon tax on fuel and some kind of time- and distance-based charge. Details of proposals on these lines are to be found in the DfT's *Road Pricing Feasibility*

Study (2004), Eddington's *Transport Study* (2006) and the RAC Foundation's *Roads and Reality* (Banks et al., 2007) along with a number of other sources.

As those studies demonstrate, such a system could create substantial new economic value in the road network—that is, benefits to society in general. It could be designed as a sensible way of dealing with carbon emissions and other damages such as noise and air pollution, by varying prices by location, time and vehicle type to reflect the specific damages done. It could also be used to generate net new income streams if that were what policy required.

The Mayor of London's draft Transport Strategy (12 October 2009) concedes that it will be almost impossible to meet carbon emissions reduction targets or to contain the worsening of road congestion without some form of London-wide road charging. RAC Foundation (2010) offers a critique of the failure of the draft Strategy to address the problem of road capacity in London in the absence of a commitment to London-wide road user charging. Similarly, the first Annual Report of the Committee on Climate Change (12 October 2009) finds that, after rapid improvements in vehicle technology, road charging would be the most effective means of achieving its national, long term greenhouse gas reduction targets. In any case the policy of moving to low-carbon vehicles and greater dependency on low-carbon electricity as the energy source will dictate a change away from duty on petrol and diesel fuel to some alternative.

While the extension of road user charging is not a necessary component of reform of roads administration, it does open a far wider range of options. If it were decided that the current road network is essentially mature with little need for major expansion, then there would be an even stronger case for reform of charging since this would be the only available, effective measure to manage demands on the network more effectively. Without it, congestion and worsening reliability of journey times will become a feature of parts of the network, at least at certain times of day. This is not an attractive prospect and, as Eddington argued, would risk significantly damaging the prospects for national productivity and growth.

However, it would be very hard to secure public support for any reformed road charging scheme that did not offer enhancement to the road network as part of the policy. The RAC Foundation in *Roads and Reality* (Banks et al., 2007) notes that to be credible any charging proposal must not be presented in isolation but must be clearly designed as but one component of a package of measures that will generate perceptible benefits, including a degree of fiscal offset by reducing road taxes; use of some of the revenues to improve maintenance, management and enhancement of the road network; the improvement of public transport; and continued contributions towards general government expenditures.

The objectives for road charging proposals need to be clear, stable and mutually

consistent. One of the problems with proposals advanced at times by the DfT was that the stated objectives changed with the minister and the audience. The consequences were public confusion and distrust.

The main obstacles to the use of road user charging as a demand management tool are: conveying to the general public the nature of the proposal; convincing them that, in principle, the outcome would be better than keeping the current 'charging' regime through taxation; and convincing them that, in practice, they can trust that the promises will be fulfilled.

12.4 The increasing acceptance of charging for other utilities

One parallel is the current debate over future energy demands and how they can be met. In energy, there is the added impetus because of concerns about lack of future generating capacity and risk of power black-outs. With the introduction of smart metering, there is the potential to introduce peak tariffs, and dynamic pricing, by time of day.

When the water industry was a nationalised industry many people took the view that water should be free at the domestic tap. There has been progress since then (with the exception of Northern Ireland where the politicians still have not introduced domestic water charging, on any basis). People did not want to pay for water by meter because rain water was perceived as 'free' and because they were afraid of the impact it could have on their standard of living, both in terms of cost and the consequences for hygiene and convenience. Any trial installation of meters was regarded as the 'thin end of a wedge' and highly politicised. It led to angry public meetings and even threats of violence.

There has now been more movement towards universal metering than many would have thought possible fifteen years ago.

The model of offering a charged alternative as an option is attractive, with the understanding that the costs unrecovered from the switchers would be recovered from those who chose to continue with the conventional, flat rate charges. In the early 1980s, Severn Trent pioneered the idea of optional metering. Individuals could install meters at their own cost and be charged on a measured basis. Guidelines were given so that people could assess whether they would lose or gain by metering (against a charge based on rateable value) so that most who opted in were gainers. The loss of income was shifted to the remainder as a group following the argument that since measured charges reflected costs, the loss of income reflected an under-recovery of cost from the group who remained on unmeasured charges. As time wore on more and more people opted in, until now the charges for the unmeasured group are so high that the impact of universal metering will be less dramatic especially for poorer households with high water usage relative to rateable value. This is an important example of measured charging becoming acceptable through individuals saving money against an unmeasured charge.

Anglian Water now leads the field with two thirds of domestic customers being metered. The company also claim that due to metering and better leakage control, they now supply 20% more population with the same distribution input as twenty years ago.

A recent independent report (Walker, 2009) points towards metering becoming the normal method of charging in those parts of the country where water is scarce, and for all customers with significant non-essential use of water. In February 2010 Southern Water announced plans to vary the rate of charge by time of the year to "preserve water supplies in the dry summer months" (BBC, 2010).

Water privatisation was a deeply unpopular policy but was able to offer the prospect of improved standards in drinking water quality and environmental quality standards for bathing waters and river quality through investment in sewage treatment—making good a legacy of past under-investment in the industry—albeit at a cost in terms of higher charges. The delivery of these investment plans and consequent improvements in service quality have been key to establishing the legitimacy of the industry.

The concept of demand management through variable charging is now fully accepted in energy and water, but there seems to have been little comparable progress with respect to roads.

12.5 Road user charges and equity

People are very sensitive to whether they regard a proposal as 'fair' or 'equitable'. Introduction of user charging would result in a fundamental shift from paying for roads through general taxation to largely paying according to where, when and how much use is made of roads. This would raise issues of social equity, as some people with limited resources to spend on travel would find themselves less able to afford to use busy roads. These people would potentially be losers unless either alternative transport that is just as good is provided, or else extra road capacity is secured to reduce the cost and allow them to go when and where they want. Little analytical work has been carried out on this issue.

One difficulty is that one cannot generalise: the equity implications depend crucially on the detail of the proposal: who will be charged, how much, and how will the revenues be spent? That is, what are the other components such as offsetting fuel duty reductions, improvements to roads and improvements to public transport? In particular, if it were proposed to introduce user charging on (a part of) the Strategic Road Network to reduce fuel duty or VED for all road users then (less than) one third of traffic would be paying towards a tax reduction for the remaining two thirds. The implication of this would need to be considered.

The incidence of a package of road user charging and complementary measures has several dimensions: for instance, geographical location (urban versus rural), income and deprivation.

Banks et al. (2007) examined the balance between the mobility benefits of charging, and the additional charges paid, for a user charging and fuel duty reduction scheme for the whole of Great Britain in the year 2041. They estimated that if there were no further road capacity provision after 2015 the value of road user charging to trunk road users would be £18.5 billion p.a. from time saving, safety and public transport benefits. However, the extra payment in user charges would be £33 billion p.a. Assuming there were no mechanism for recycling the income for the benefit of trunk road users (such as reduced taxes elsewhere or investment in congestion relieving transport projects), the government would gain £33 billion, but the road user would have a net loss of £13 billion p.a.

However, if some of the charge payment were spent on providing extra road capacity, the benefits to road users would increase and the charges would be reduced because there would be less congestion. If additional strategic capacity equivalent to 400 lane-kilometres p.a. of new road were provided (at a construction cost of approximately £3 billion p.a.), the additional benefits would be worth the extra cost to trunk road users, despite the government gaining a net £25 billion p.a. At 600 lane-kilometres p.a., the road user would gain £4 billion p.a. and government net revenue would still increase by over £20 billion p.a.

These figures underline the importance of the allocation of the income as part of the road user charging package on public acceptability.

Glaister & Graham (2006) analysed 'revenue additional' road user charging (in which charges are imposed but fuel duties are not reduced) and 'revenue neutral' road user charging (in which fuel duties are reduced sufficiently to keep the total of charges and taxes unchanged) in 2010 conditions. They concluded that in the case of a revenue additional policy, road users as a group would be worse off. If the revenues were returned to the local communities from which they came then road user charging could lead to important overall gains for communities, though the net effect on road users or transport users generally clearly depends upon how the money is spent.

The revenue neutral policy would generate somewhat less overall net benefit, but it would make road users as a whole better off because the revenues would be returned to them and the road network is more efficiently used. A major feature of the revenue neutral policy is that it would transfer considerable sums of money from urban areas to rural areas, particularly from London. Unless compensation was made, such as a change in the local government finance regime, the residents of the urban areas would, as a group, be made worse off. Since a majority of the population lives in or near the urban areas a consequence could be that a large number of people would be made worse off and a small number would be made better off.

These average calculations need to be treated with caution because they conceal important variations. For instance, under a revenue neutral scenario car users in urban

areas at uncongested times would be paying less even though, averaged across the week, car users in urban areas were paying more.

An important issue is the extent to which road user charging might benefit or burden disadvantaged people. It would definitely involve higher average charge rates in large urban areas where there are also concentrations of deprivation and so there is a relationship between the rates of charge and levels of deprivation. However, across England as a whole it is not a very marked one. This is because high deprivation is to be found in most types of area, in the remote parts of the country as well as in the large urban areas.

Glaister & Graham found that if road user charging were introduced, census wards (the unit of analysis) showing high levels of deprivation in relation to employment, housing and education would, other things being equal, tend to have smaller traffic reductions because of smaller price increases. Indeed, in the case of the revenue neutral policy these areas are more likely to enjoy reductions in the cost of motoring. Employment, housing and education deprivation all show a significant positive relationship with traffic change. To the extent that reduced travel costs by car are helpful in mitigating these types of deprivation, road user charging will be less damaging on these measures than on the other measures of deprivation.

However, it is worth bearing in mind that the true effects on households would be determined by the charges in the areas through which they drove rather than where they live. Overall, the indication is that there is no systematic relationship between ward income deprivation and the changes in speeds and charges that might arise from road charging.

Of course, these findings are only indicative, but they do illustrate that the incidence of these policy packages is not obvious at first sight. Analysis is required.

13. Funding in the Absence of New Tolls or Charges

If there were to be no new means of charging then the only way of generating extra funds would be by raising existing tax rates. This would be controversial and lacking in objective justification in view of the heavy taxation of the roads sector relative to other sectors of the economy. Separate income streams could be created by identifying specific parts of the existing tax revenues but this would, by definition, be part of the existing whole and not net, new cash flow.

13.1 Ring-fenced taxes

In the absence of road user charging, one option for putting roads on a more independent financial footing is the allocation of VED or an element of fuel duty to provide a revenue steam. There are precedents for this and, as Heggie (2006) has described, in the last twenty years, the principle of earmarked road funds has been adopted by a number of countries, including New Zealand, Japan and the USA.

Under these arrangements, the basic expenditures on the highways network are funded by charges related to road use. This might comprise a fuel levy collected directly from fuel companies and paid into a road fund account; and also by a direct element of road user charging. In general, the fund is then managed by an independent board which would include representatives of road users.

Although Heggie points to some success stories worldwide in the use of road funds, none has so far followed the model used for UK utilities with independent regulators determining revenue requirements, setting efficiency targets, and holding road authorities to account for performance and the delivery of outputs.

In 2007–2008 £5.5 billion was collected in VED from all road users. This compares with

a 2008–2009 budget for the Highways Agency of £6.9 billion (although the VED figure is for the UK).

VED was originally introduced in the 1909 budget by Lloyd George to fund building and maintenance of the road system. It may have been expedient but there seems little logic in designating the income stream which is related to VED: its yield bears no relation to the performance of the particular infrastructure and future governments might well wish to change VED rates for reasons of policy just as recent ones have done, to incentivise the purchase and ownership of lower carbon vehicles.

13.2 Network grants

It is quite possible to have a combination of independent revenue and government support as demonstrated by the case of Network Rail, which from April 2009 received network grants from government covering some 60% of its revenue requirement, the remainder coming from track access charges paid by train operators and property income. This division of the burden reflected a wish by the Treasury at the time to support capital investment and major renewals with capital grants and operating and other revenue costs through track access charges.

13.3 Shadow tolls

An alternative is shadow tolls. The Highways Agency explains that Design, Build, Finance and Operate (DBFO) started life as a precursor and transition to motorway tolling, designed to create an operating industry which took a long term commercial view and which might manage tolled motorways in the future. With this in mind, the Conservative Government announced in November 1992 that private-sector companies might be invited to bid for DBFO projects, with remuneration from the government according to usage. The DBFO concept was included for consultation in *Paying for Better Motorways: Issues for Discussion* (May 1993). In summary, the private sector, over the thirty year life of the contract, assumes responsibility for the operation and maintenance of a length of existing road (where appropriate) and the detailed design and construction of specified improvement schemes and their subsequent operation and maintenance. These responsibilities lead the private sector to focus on delivering whole-life cost efficiencies. DBFO has developed into a method of procurement worth pursuing in its own right as an alternative to other forms of procurement using conventional funding arrangements" (Highways Agency, 2005).

The private provider receives an infrastructure service charge paid by government which depends on the vehicle flow. This is not visible to users. This has the advantage of relating

the income to the performance of the road: with the implication that some demand risk is transferred to the enterprise. The revenue stream to the asset provider can be related to or moderated by performance measures, such as asset condition, traffic delays, handling of incidents. In 2005 Highways Agency procured about 9% of the network in this way.

13.4 A future transition to actual charges?

However, the most satisfactory means of creating an income flow would be through tolls or more sophisticated, distance-related charges. Road user charging may well be introduced in place of the current charging system at some time in the future and the creation of more independent roads governance would greatly facilitate this. It would allow government to offer a package of measures, including offsetting reductions in fuel duty and VED and a credible promise that some or all the charge revenues would be used to maintain and enhance the charged network according to defined public interest criteria. The fiscal flows would be transparent and auditable.

In any event fuel duty revenues will fall in the future if the government succeeds in its policy of encouraging a major shift towards more fuel-efficient vehicles and low carbon energy sources—so the Treasury will be driven towards innovative charging mechanisms for this reason alone.

14. Constitution, Powers and Duties of a Roads Body

There appear to be three main alternative governance structures: we refer to them as a 'central government body', a 'public corporation' and a 'private, regulated utility' (Office for National Statistics, 2010b).

14.1 A central government body

This would involve creating a more autonomous body than the Highways Agency with strategic duties and powers to borrow. It could, as now, remain as a part of the Department for Transport. Or it could be constituted as a non departmental public body (NDPB). A NDPB is defined as a "body which has a role in the processes of national government, but is not a government department or part of one, and which accordingly operates to a greater or lesser extent at arm's length from ministers" (Cabinet Office, 2009). It could be constituted as were the nationalised industries, with an independent board of management.

It would inevitably be subject to the normal revenue and capital spending controls imposed on all government bodies. However, the BBC is a central government body with a considerable degree of autonomy within the licence fee set by government. The combination of something along these lines and an Office of Rail Regulation style regulatory regime to ensure funding to support efficient delivery of agreed outputs could be an attractive model. A way forward would be to replace VED with a licence for road use, the fees for which would go direct to the new central government body.

Whilst such an arrangement might succeed in creating a little more independence, transparency and accountability, it is hard to see how independent public interest regulation could be made compatible with it.

14.2 A public corporation or public trust

A public corporation or public trust would set policy, allocate budgets, make investment decisions and execute those decisions. High-level objectives would be enshrined in the enabling legislation and subject to variation by Parliament. The overall budget would be set by government and funded by grant.

It could be given powers to make charges to users and to issue debt. As we have noted, there is a long and continuing tradition of using this structure, which still operates for a number of English ports and airports. The London Passenger Transport Board was, between 1933 and nationalisation in 1948, a trust funded by charges to users and with the board members nominated by a number of non-governmental bodies. Another analogy might be the North American and Australasian trusts set up by statute to deliver public services: NavCanada, the Canadian body delivering air traffic control services was considered as a possible model for both UK air traffic control and when bringing Railtrack out of administration. In the event National Air Traffic Services was constituted as a Public Private Partnership and Network Rail as a company limited by guarantee because it was considered that the relevant trust legislation would have created difficulties. If this model were to be considered again particular care would have to be taken to ensure that independent regulation could be introduced into the trust structure.

Securing a publicly acceptable level of control over the level of charges would be difficult to solve without direct political control. The rules for setting charges could be set out in the governing statutes and their observance could be independently audited.

A difficulty is that if a significant portion of the funding were to come via the government then the government is likely to insist on a strong measure of control over the body—for instance by making most of the board appointments—which, as we have noted, will risk the body being classified in the public sector. The consequence of this is that revenue and capital budgets would become entangled in the general public expenditure process: something that our reform is specifically designed to put right.

If the body were receiving its income through user charges, with a portion of those revenues designated for transmission to the Exchequer in replacement for present road tax revenues then the cash would be flowing the other way and this problem might be solved. The debt of National Air Traffic Services and of Network Rail is classified to the private sector. However, London Underground and its private sector contractor, Tube Lines (Holdings) Ltd, were both classified as public corporations.

It is apparent that there is a great variety of arrangements in existence and that in the past ingenuity has been employed to create bodies with a structure of control and classification of debt to suit the policy requirements of the day.

It is not easy to see how this arrangement could be used to create an asset sale value to the Treasury, which some would see as an advantage. However, it certainly could be used as a vehicle to receive and be accountable for new road user charges.

14.3 A private, regulated utility

We refer to the alternative structure as a 'private, regulated utility', having in mind something analogous to the existing, privatised utilities. This is more appropriate if it were desired to sell road assets to private owners—which, in turn, would make it much easier to use charges as a way of funding enhancements. This would undoubtedly require independent, public interest regulation. It is worth noting that structural factors may be increasing the demand for such investments, for instance the need for investors to find a relatively safe, long term 'home' for pension funds. A quantity of infrastructure investment is currently funded by Canadian and Australian pension schemes: these countries represent a small part of the population of the developed world so there is potential for much more investment from this kind of client.

So long as the roads industry remains funded by a substantial Exchequer grant, the difficulty that forced the most recent reform of the railways will remain. There had been a difference of view between the Rail Regulator and the Treasury about which of them should lead in determining what was to be spent on the railway. Now, the Office of Rail Regulation decides in its periodic review the appropriate level of track access charges in the light of High Level Output Specification and Statement of Funds Available, which the Office of Rail Regulation reconciles as necessary, and, crucially, in the light of assumed improvements in efficiency over the control period.

As with the public corporation—and the railways under the arrangements with Railtrack when first privatised—if the body received its income from user charges this problem would disappear.

14.4 Duties

Whatever its formal constitution, if a separate roads body is created it should be given statutory duties to maintain and develop the road network. For example, under Condition 7 of its licence, Network Rail is required by the Office of Rail Regulation to secure the:

- operation and maintenance of the network;
- renewal and replacement of the network; and
- improvement, enhancement and development of the network.

In each case it must act in accordance with best practice and in a timely, efficient and economical manner so as to meet the reasonable requirements of persons providing services to railways (i.e. train operators) and funders with respect to the:

- quality and capability of the network; and
- facilitation of railway service performance … on the network.

Water companies operate under a general duty to develop and maintain an economical and efficient system of water supply within their area and have specific obligations in relation to the supply of wholesome water to customers. In addition, they are required to maintain asset management plans and publish measures of network serviceability. Network Rail has comparable duties to maintain an asset register recording the condition and capability of its assets.

A roads body would need to take account of local transport plans, to engage with local transport authorities and local communities.

The job of an independent regulator might be to:

- set the principles by which any user charges are made and ensure these are followed;
- ensure that the road infrastructure provider was able to finance its functions for maintaining and enhancing the capacity, capability and safety of the strategic highway network;
- ensure operational quality;
- monitor its performance in relation to stewardship and service delivery; and
- hold it accountable.

In the absence of proper road pricing a roads regulator would have a role which reconciles proposed funding levels with (say) five year maintenance and enhancement programme, assumed efficiencies and required improvements in agreed performance measures.

The regulator would determine an approved investment programme, and agreed outputs in relation to capacity, capability, safety and performance of the network. The roads body would also have a duty to undertake longer term investment planning and to set out approaches for meeting future demands on the network, in the same way as water companies.

Any form of direct charging on part of the network will result in some diversion of traffic to the remainder which will be perceived by drivers as ‘free’. This would need to be addressed by a mixture of regulation and an acknowledgement that some additional resources would need to be deployed on the residual roads. This, while a most serious challenge, has to be confronted positively.

In establishing a regulatory framework for roads, one possibility would be to have a combined road and rail regulator (the Office of Transport Regulation). But, rather as with the matter of consumer representation, the task for strategic roads would alone be so

large that there would be a danger of creating an unmanageably large and complex body. A specialist roads regulator should be created in the first instance: it would always be possible to amalgamate offices in the future—just as the offices of gas and electricity were amalgamated once the initial systems had been established.

15. Transition

Were it to be decided that there should be major reform then the best way to achieve a transition would have to be determined.

There are arguments against proceeding cautiously. The public expenditure problem needs addressing without delay. A recently elected government might feel able to adopt direct user charging if this ameliorated tax increases. The opposition to charging will not go away and could become more organised over time. Road users are dissatisfied and will become increasingly dissatisfied and the weak state of the public finances demands that pricing options be given serious consideration.

On the other hand there seems to be a broad consensus that a staged, incremental approach to reform is the better way forward.

The limited scope of the Highways Agency at present is a problem. One argument is that you have to start somewhere. Putting a better framework in place for the Highways Agency may make it easier to extend some elements to other parts of the network later—the central government body model in the first instance. One possible staged approach would be as follows:

(1) Development of performance measures: some of these are present already, but are not well publicised. Key elements for a successful system include:

- completeness;
- customer focus;
- independent verification and monitoring;
- cost efficiency and performance by network element; and
- regular publication.

(2) Independent review of efficiency, involving:

- development and publication of benchmarking information (costs and performance); and
- review and independent commentary on medium term plans.

(3) Medium term targets, with associated funding provision. To ensure internal consistency, this requires:

- medium term output specification and funding commitment from the DfT;
- independent costing of medium investment term plans;
- the equivalent of licence enforcement where outputs are not delivered;
- an 'interim review' mechanism for additional costs outside prudent management control;
- a management incentive plan based on delivery of targets;
- a 'hard' budget constraint; and
- sanctions if requirements are not met, which could include removing parts of the network from the portfolio.

It is not until stage (3) that the structure of the Highways Agency becomes an issue. At that point, there are again a number of options. Is, for example, the priority at that point to create an independent revenue stream through user charging, or would there be more benefits from focusing on restructuring and introduction of private management and finance, possibly leading to some form of long term concession?

The introduction of user charging is widely seen to be the biggest hurdle to be overcome and there is a timing question. An interim solution to the funding problem pending the introduction of some system of user charging could be to assign revenues from VED or fuel duty.

With road user charging, its method of introduction and its scale are both up for consideration. One suggestion is trialling tolls on a single motorway with the results of such trials being independently assessed. Such trials might also be seen as a prelude to a wider public debate on the role of charging in managing demands more effectively on a capacity-constrained network and also perhaps as a means of achieving environmental targets for road use. However, this has the considerable disadvantage that it could not be combined with a compensatory reduction in fuel duty and there would be diversion onto the neighbouring road network.

If, on the other hand, the Highways Agency were made into a separate public body in the first instance then this would not preclude privatising it at a later, unspecified date. This is how Railtrack was handled under the Railways Act 1993.

Any major reform package of the kind we envisage would seem to require primary legislation and thus consultation proposals (a Green Paper) and a White Paper, prior to a draft bill. Therefore, there would be ample opportunity to debate the key issues involved—the use of assigned revenues, user charging, corporate structure, regulation and consumer representation—as part of that process.

The question is whether the government will see the reform of governance and funding of the road network as a sufficient priority. The answer might be 'yes' if it offered the

prospect of significant revenue from asset sales, private finance for new investment in place of Exchequer funding, and better outcomes for road users and the environment. This raises the other question of what reforms would be possible without primary legislation? What would be necessary, say, to introduce road tolls on the M1; to change the Highways Agency into a 'Go-Co' (government-owned company)?

One might want to start the process of reform with some 'easy wins' and prepare the ground for more fundamental reforms in three or four years' time although that may not work in terms of electoral cycles.

16. Outcomes to Avoid

Whilst there are several options for reform to choose from there are some things that should be avoided in all cases.

Transfer of ownership to asset managers who are incentivised to generate shareholder value by over-engineering. A tendency towards 'gold plating' is a persistent regulatory problem for utilities.

Similarly, hiding undesirable cost savings by using poor construction standards. This does not preclude privatisation but indicates that alert supervision is necessary—and it can be a problem under the present system.

Transfer of ownership funded by a 'dowry' of a defined share of existing tax revenue, without an adequate, enforceable obligation to maintain and enhance the network. That would achieve little from the point of view of users: it would effectively be a device for government to capitalise a future annual tax revenue flow. It would compromise the ability of future governments to vary the basis of the tax for reasons of policy.

A body which has the responsibility to deliver all the required performance but has insufficient ability to fund these outputs. The devolution of responsibilities for strategic roads to the Regional Development Authorities has had this flavour.

A powerless consumer watchdog introduced as a gesture rather than as an effective complement to regulation.

A mutually destructive relationship between the new body and regulators, national, regional and local government and road users. There needs to be alignment of purpose between the objectives of the new body and the requirements of those with a direct interest, otherwise the conflicts will create a perception of failure as with Railtrack. There must be pressure on regulators to be effective too.

Politicisation of the process so far as it can be avoided: the incremental development of the Docklands Light Railway (DLR) serves as a successful example. It is essential that any reform can enjoy some political consensus and avoids the sort of discussions that have bedevilled rail.

16. Outcomes to Avoid

Few people get into a moral rage about the 'fragmentation' of the DLR or the shadow tolled roads: these changes were very small and were not presented to the public as a philosophical question, 'private bad versus public good' or vice versa. Most people are unaware that these assets are privately run and partially privately financed.

A confusion of objectives leading to inaction.

Fostering public cynicism. This must be avoided through a debate that sets out the realistic options and the implications for people. Otherwise an ill-informed response will be: "we have paid for the roads, now they are going to sell them off to someone who is going to charge us for using them."

17. Summary and Options

It is plain that this is a complex and controversial subject. It will require clear political leadership to make progress. Champions and practical innovators are crucial to success. A fully argued proposal will have to be developed—simple to understand, with all the issues such as method and scale of any charging set out. This is what was offered by the *Road Charging Options for London* study to Livingstone as the first directly elected, executive mayor for London. Without it he could not have succeeded with his policy of introducing the Congestion Charge in London.

The *status quo* is not the worst possible option but we have argued that it is unsatisfactory.

To gain public confidence any proposal for change must offer a clear and trusted 'deal'. It must generate perceptible benefits that can be explained and 'felt', such as improved reliability with reduced congestion and delay, and greater transparency of performance standards and road taxes, charges and the use of revenues, otherwise it will generate fatal political opposition.

It must therefore be:

- understandable (keep it simple);
- broadly 'fair' (spell out winners and losers);
- credible (the arithmetic must stack up);
- technologically robust (it will work and not be prohibitively expensive); and
- worthy of trust (the public can see that they can check whether it has been delivered).

Reform could be of either governance or charging, or both.

Any reform that involves road user charges or tolls has to be national (rather than particular to a city region, for which powers have existed since 2000) because it must offer reform of existing road taxes which we assume to be uniform across the nation. We recognise that some countries such as the US have both federal and varying local road fuel taxes but we do not consider that option here. We also acknowledge that a reform

Table 17.1: Options for geographical coverage, governance, charging and sequencing

	(a) Central government body	(b) Central government body and shadow tolls	(c) Public corporation and shadow tolls	(d) Public corporation with user charging	(e) Regulated private utility with shadow tolls	(f) Regulated private utility with user charging
Individual Motorway(s)	x	x	x	Immediate	x	Immediate
All Motorways	x	x	x	Immediate	x	Immediate
Roads of National Importance (RNI)	x	Immediate	Immediate	Immediate	Immediate	Immediate
Strategic Road Network (SRN)	Immediate, user charging long term	Immediate, user charging long term	Immediate, user charging long term	Long term	Immediate	Very long term

Note: 'x' indicates a reform that we consider not to be worth further consideration.

Source: Author's own

that disturbs the existing arrangements would precipitate debate with the devolved administration in Scotland and Wales because roads are a devolved responsibility.

The system must continue to deliver revenue for general government expenditure.

It must have a plausible funding plan for revenue expenditures and capital investment, having regard to the realities of the public finances.

The imperative for transparency and accountability for both income and expenditure implies more separation from national and local government. That in turn implies that effective public interest regulation of charges and obligations to maintain and enhance the network is essential.

To the extent that it relies on private capital for its financing it must offer credible protection for lenders.

It should secure economy and efficiency in delivery.

It should also deliver, over time, gains in both road safety and the environment and it must be congruent with national policies on greenhouse gas emissions.

17.1 Corporate structures

We have identified three possible corporate structures:

- central government body;
- public corporation; and
- regulated private utility.

17.2 Geographical classifications

We have identified three possible geographical classifications:

- motorways (individual ones, groups or all of them);
- roads of national importance; and
- strategic road network.

17.3 Charging regimes

We have identified three possible charging regimes:

- no change;
- shadow tolls; and
- road user charging (with a reduction in fuel duty).

17.4 Timing

We have noted that there are timing options for changes to be introduced:

- immediate;
- long term; and
- very long term.

17.5 The options worth considering

This is an extensive set of possibilities but the leading options are summarised in Table 17.1 (p. 74). We have marked with an 'x' options we consider not to be worth considering. Note that since the geographical span of each row of the Table is a sub-set of the one immediately below it, adopting a row implies also adopting all those above it. Moving down a column over time could be one candidate for a transition; as could simultaneously moving down and to the right.

17.6 Central government body: column (a)

The Roads of National Importance (RNI) are a sub-set of the Highways Agency's present portfolio so there seems little point in creating a central government body for that with the present charging regime. However, we have argued that there is merit in the option of extending the present portfolio to the Strategic Road Network (SRN) and creating a more distinct, strategic, central government body, with the longer term possibility of introducing road user charging (with a reduction in fuel duty). This could be viewed as one of the leading options considered (and ultimately rejected) by the government after the 2004 road pricing feasibility study.

17.7 Central government body and shadow tolls: column (b)

If the present system of shadow tolls were made more systematic, over the whole of the RNI, then this could be a viable model. The successor to the Highways Agency would receive income direct from government according to a schedule of shadow tolls. The existing Private Finance Initiative agreements, where the private sector maintains Highways Agency roads in return for an infrastructure service charge (whether or not it is formulated as a shadow toll) would not need to be disturbed: they could be funded either as a simple pass-through from government to the private contractor providers, or out of block grant from government to the new body, as in the current arrangement. There would be the possibility of replacing some, or all of the government funding with real road user charging in the longer term.

There are loose analogies here with the relationships between the Strategic Rail Authority, Network Rail and the train operating companies; and between government, the Greater London Authority, Transport for London and Tube Lines under the Public Private Partnership for the London Underground. These suggest that it is possible to set these kinds of arrangements up but also that they do not always work very satisfactorily!

17.8 Public corporation and shadow tolls: column (c)

This set of options is similar, except that the full independence of the body is established in a public corporation. This might have advantages in that it would emphasise the duty of the independent body to promote a long term strategy for its portfolio. It could also form a preliminary step towards some of the options which have proper road user charging, in column (d).

However, as with all the options we have considered so far, it would have the considerable disadvantage that all of its income would ultimately come from the Treasury and it would undoubtedly be caught by all the usual restrictions on revenue and capital spending and on borrowing.

17.9 Public corporation with user charging: column (d)

If road user charging were introduced at the same time as the creation of a public body (whilst reducing fuel duty) then more options become available.

There are several advantages of having user charges: they are 'real' for users so they can be used to manage demand and congestion; they are 'real' for the infrastructure provider so the incentives are sharper: it can be properly held to full financial account; the body has its own income and could be required to pay part of that income to the Exchequer in replacement of the fuel duty.

This last advantage is crucial because it would mean some of the cash raised from charges flowing to the Treasury, rather than tax cash flowing from the Treasury. That would allow the classification of the Trust to the private sector.

This is the option most similar to the Network Rail arrangement for the fixed infrastructure for the railways. That has faults, but it does benefit from a somewhat independent body, classified to the private sector, to promote the railway and the considerable advantage of an explicit strategy, embodied in the High Level Output Specification and Statement of Funds Available.

There are several possible routes for a transition. For instance, a public corporation could be created with responsibility for the RNI and with user charges over the whole of that

network. Alternatively, as an intermediate step it could have the RNI but only operate user charges on some (or all) of the motorways, with shadow tolls on the remainder. However, then it might not have sufficient income to avoid a requirement for grant. In the longer term the aspiration would be to extend user charging to the whole of the SRN.

17.10 Regulated private utility with shadow tolls: column (e)

This option can be seen as extending the present system of Private Finance Initiative road schemes universally to a network and selling ownership of assets (with the existing procurement contracts in place) into the private sector. The sale could be in perpetuity or for a fixed period, with an ultimate reversion to the state.

This last possibility would be similar to the present Public Private Partnership for the London Underground. Experience has shown that to have shortcomings in practice. However, major highways are technically much simpler than urban railways and might be argued to operate in a more benign political and administrative environment.

The incentive to earn revenue would encourage the new company to maximise traffic levels, which in turn would encourage cars and lorries onto the most suitable roads and encourage efficiency in managing maintenance and clearing obstructions. This sort of model could be superior to the present piecemeal initiatives and encourage better management of both major roads and costs.

The financial incentives could be sharpened and the sale value increased by dedicating some—or all—of the present VED or fuel duty revenues to enhance the unit rate of the shadow tolls. Whilst this could have advantages in terms of creating effective incentives to enhance the capacity of the network, we have noted above that there would be an element of arbitrarily capitalising a future tax revenue

An expert who has worked on a large number of privatisation plans at different times commented to us as follows: “this one looks easier than many and certainly easier than water privatisation did in the early 1980s. The roads industry needs its [champion at] Thames Water who was instrumental in convincing the Thatcher government that water privatisation was achievable.”

Since shadow tolling is essentially invisible to the road user it would be relatively easy to extend the scheme to the SRN immediately.

The advantages of this option over the public corporation with shadow tolls are that it might be argued to give sharper incentives to efficiency and it could raise capital for the Exchequer.

The considerable disadvantages compared with the options offered with road user

charges are that it cannot use differential charges to manage congestion and that it raises no new, independent income stream, so it would risk classification to the public sector (as has happened to the London Underground Public Private Partnership).

This option might be useful as a staging towards the next one.

17.11 Regulated private utility with user charging: column (f)

This option has all the characteristics of column (d)—the public corporation with user charging—in addition to raising a capital sale value.

Its full extension to the SRN might be regarded as a very long term aspiration but not an immediate one, simply because of the difficulties of persuading the public. On the other hand, to introduce a private utility operating tolls on the motorways only would be to do little more than is routine in France, Italy, Australia and other countries.

The main difficulty to be answered with any scheme that introduces user charging on some roads but not others is the risk of diverting traffic onto less suitable, local roads. This is generally a more severe problem in England than on the Continent because the distances tend to be shorter and the competing road network is denser.

There are two arguments in mitigation. The first is that if charges were correctly set—and independent regulation would need to ensure this—the places where the user charges were high would be those where congestion on the charged road is already high, so diversion onto alternative routes will be occurring in any case because of the inadequate capacity on the strategic road. The regulatory regime must ensure delivery of a commitment to enhance capacity by better management or physical improvements, in those situations where charges (and congestion) are highest. This is crucial, otherwise a private owner will be left with a perverse incentive not to expand capacity, both to avoid costs and to increase charge revenues; in other words, to foster and abuse a dominant position.

The second component of a solution to traffic diversion is to use sensitive design that requires certain sections of road not to be charged at particularly problematic locations. This is common on the autostrada, where the road runs through a dense suburban network. This approach may dictate that, for instance, only a selection of motorways or only some of the sections are charged.

18. Our Preferred Options

We now set out our preferred long term options and then discuss the route to achieve them.

This reform will be controversial and difficult to achieve so it is only worth contemplating if it is likely to make a real difference. It should encompass the roads of national importance—the motorways plus those major roads that could be defined as the strategic network, the responsibility of the nation rather than local authorities. These would, at the least, include all those Highway Agency roads due to be reclassified as RNI under current plans and possibly some more.

The reform should offer a way of managing congestion and raise new income some of which is ring-fenced to enhancing the capacity of the candidate portfolio of roads where economically justified, either by more intensive management or building new physical infrastructure. It should allow the newly responsible body to be free from the spending and borrowing strictures that apply to bodies classified to the public sector.

Together, these requirements lead to the unavoidable conclusion that the new body must implement road user charges and that the revenues must be sufficient for it to fund its own activities (including a regulated rate of return on the value of its assets) and make a positive contribution towards general Exchequer funds. That, in turn, implies an accompanying reduction in fuel duties or Vehicle Excise Duty (or both), in addition to an enforceable requirement to enhance the network.

This leaves a choice between a public corporation and a privatised utility. Either would require a measure of independent, public interest regulation.

An advantage of the public corporation is that some of the public interest regulation can be written into the governing instruments of the trust and some of the inherent problems of full access to accurate information available to a formal, independent regulator may be eased. An important further advantage is that it avoids the controversy and opposition that would inevitably be caused by the 'privatisation of a national asset'.

By the same token a considerable attraction of the privatised utility option from the viewpoint of a capital-starved government is that it could raise a considerable quantity of new capital from the sale. The sale price would obviously depend upon: the scale of the assets on offer; the perceived severity of the regulatory regime in relation to setting charges; and the perceived cost of meeting the obligations to maintain and enhance the network in order to satisfy the defined quality of service standards—all considerations familiar from previous utility privatisations.

In either case it would make sense to create a new body immediately to be responsible for the roads of national importance. If—as is probable—it were regarded as too difficult to simultaneously switch to time- and distance-based road user charging over the whole portfolio, then a transition could be designed. This might start with universal shadow tolling and actual road user charges on one or more major roads. The intention would be to progressively extend road user charging to a substantial part of the portfolio, together with a programme of capacity enhancements and offsetting fuel duty and VED rates. An independent regulatory office would be established to protect the road-user and general public interest; to protect the interests of investors and to help manage the interfaces with local highway authorities.

It is our judgement that more technical research will not add substantively to the knowledge needed to inform a decision on policy. The next step has to be that decision and communication of what it would mean for road users. The exception to this is the systematic analysis of 'equity' and 'fairness'. This is important but rarely researched and the implications of a fully articulated, rounded package of measures are by no means obvious. However, it depends critically on the exact detail of what is being proposed.

This paper has not sought to work out a detailed proposal: that should be the next step. Central government (Cabinet Office; Treasury; Transport; Communities and Local Government; Home Office; and some others) could establish an interdepartmental working group with a remit to take these ideas forward within a specific timetable for political consideration. This should involve a wide spectrum of consultation with the various interest groups including local government, private financial institutions and equipment suppliers.

The alternative to consideration of reform of the kind we have discussed is to continue to muddle through in the face of growing needs and an unprecedented shortage of public funding. There has been reluctance on the part of senior national politicians to enter into this difficult debate. However, as the House of Commons Select Committee on Transport remarked in March 2010: "The government must clarify the basis on which it assesses and allocates funding to infrastructure projects. Mechanisms for allocating funding to transport schemes should be transparent and give greater weight to economic benefit" (para. 54) and "… the major road network is the most important

part of the UK's transport infrastructure. As such, and especially in the light of very significant expenditure and increasing policy attention devoted to other modes such as High Speed Rail, it is important not to lose sight of the significance of the major road network" (para. 93).

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