# GOVERNING AND PAYING FOR ROADS

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## ABSTRACT

The paper addresses the issue of how to improve the governance and funding of main road networks with particular reference to Britain. The existing arrangements are outlined along with the problems that currently attend Britain's main road system. After reviewing some developments overseas and with other recently reformed utilities in the UK options for overhauling the way Britain's main roads are managed and paid for are considered. These range from a central government agency through to a privately operated regulated utility. Payment option include government grant, ring fenced tax receipts, shadow tolls, conventional tolls and direct (PAYG) user charging. How the transition from the existing regime to a new regime is also discussed. It is concluded that a privately operated but publicly regulated utility or public corporation, covering the national main road network and charging directly for road use with an efficient pricing regime are the preferred options as these would ensure adequate funding, efficient management, use and development of the system and appropriate transparency and accountability.

## 1. INTRODUCTION

1.1. Roads are the most important component of most countries' land transport infrastructure. In Europe for example three quarters of all freight traffic and nine tenths of land based personal travel goes by road. Even in the United States with its vast rail system a third of freight and 99% of land based personal travel uses roads [1]. In many countries the absence of significant rail or inland water facilities means that dependence on roads for mobility is near absolute.

1.2. Increasing populations, economic activity and wealth have fuelled the growth in road transport and, to varying degrees, the capacities of road networks has been increased to try and accommodate this. However too often the expansion of road capacity has failed to keep up with the growth in demand and the consequent congestion and unreliability of operation has resulted in economic costs and restrictions on personal mobility. As well as quantitative shortcomings the quality of road systems has not always been improved sufficiently to match the requirements of modern motorised traffic with adverse effects on the safety of road users and the environment. These shortcoming are most evident on main roads where traffic density increases have been highest.

1.3. Increasing populations, rising living standards and increases in trade will continue to exacerbate this problem especially in those less developed countries where economic growth is likely to be greatest. With an expected increase in world population of 2bn between 2011 and 2050, most of this being in Africa, Asian and Latin America [2], the pressure on the main road systems of countries in these regions will grow strongly. In its study of transport sustainability the World Council for Sustainable Development scored

mobility infrastructure in developed countries as 'of concern and needs improvement' and for developing countries as ' at an unacceptable or dangerous level' [3].

1.5. The imbalance between demand for road capacity and its provision is usually the result of each being generated by different sets of 'drivers' which are barely linked to each other - and easily get out of step. Demand is driven by population and economic growth whilst the supply of main road space is typically determined by public policies which have to balance expenditure on roads with the need to fund education, health, defence, welfare and other programmes. Too often this results in lower levels of funding than accommodating the growth in demand requires. When policies envisaged being able to provide fully for predicted demand this may have been viable (even if not economically justified) but in many countries this era is long gone. This problem is not confined to provision of additional capacity but also to maintenance of existing assets especially when these are ageing to the point where extensive renewal or replacement are needed.

1.6. The paper addresses this issue from a UK perspective, but with an eye to the wider application of the principles involved. Much of its content is based on the RAC Foundation Report ' Governing and Paying for England's Roads' [4].

## 2. THE GOVERNANCE AND FUNDING OF ROADS IN BRITAIN

2.1. Most roads in Britain are the responsibility of either central, 'regional[1]' or local government. The upper tiers of government are responsible for a trunk road network of 12.2k kms in length out of a total of 394.4k kms [5]. The remainder is the responsibility of local highway authorities of which there are almost two hundred in Britain. Of this 382.3k kms one tenth are classified as 'Principal' roads and can therefore be regarded as main roads. Trunk roads and Principal roads each carry just under a third of all traffic [6] and it is on these roads that most congestion arises. The exceptions to this regime are a few local toll roads, some local private roads and a number of major toll roads of which, with one exception, are river crossings. This exception is the Midlands Expressway.

2.2. Subject to these exceptions, expenditure on road maintenance improvements is currently provided by local and central government. This was not always the case as when taxes on motor vehicles were first introduced in 1909 (a petrol tax of 3d per gallon plus and annual vehicle tax of between £2 2s and £42 depending vehicle type and horsepower) the proceeds were paid into a Road Fund to be used only for roads purposes. Over the following years loans were taken out for other purposes and it was finally absorbed into the consolidated fund in 1936 [7]. Since then there has been no clear link between moneys raised from road users, traffic needs and expenditure on roads.

2.3. Local authorities in Britain have very limited taxation powers and are reliant on central government to provide the lions' share of funding for the services they provide including roads. All major road schemes need specific approval by central government to

[1] Here the term 'regional' is used for the Scottish and Welsh government agencies responsible for trunk roads in their respective countries. Great Britain comprises England, Scotland and Wales.

proceed and whilst central government identifies road maintenance expenditure in its annual grants to local authorities they are not obligated to spend this amount on roads maintenance and often choose not to do so. In 2009/10 it was estimated that only two thirds of the required maintenance expenditure in England and Wales was provided to local highway authorities and to clear the maintenance backlog would take over ten years even if adequate funding were available.

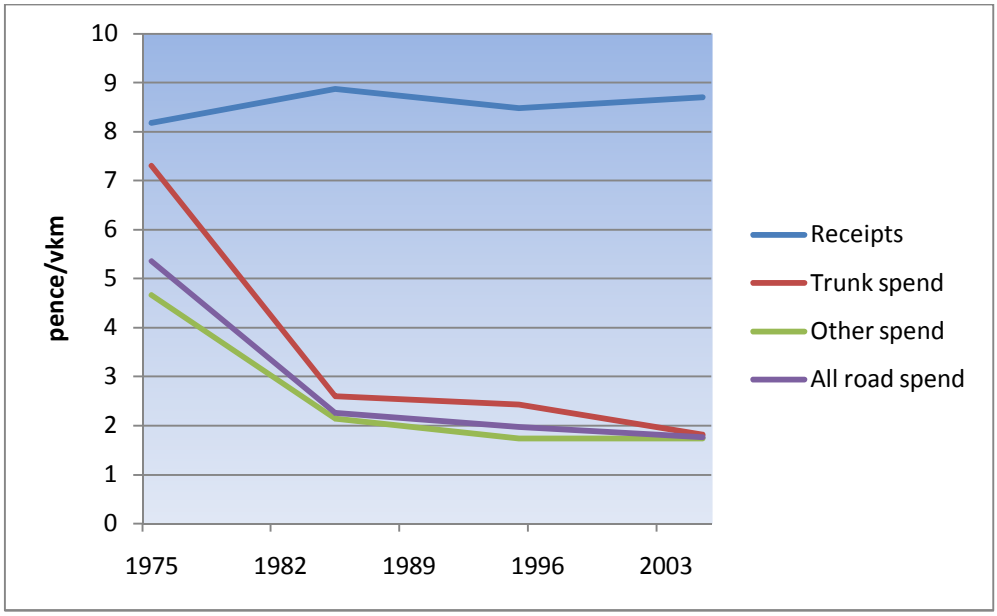


Figure 1- Receipts and Expenditure on Britain's Roads 1975 - 2005 (pence/vkm @ 2008 prices) [8].

2.4. Road users in Britain pay a variety of taxes at present. Motoring specific taxes include an annual Vehicle Excise Duty (VED) which raised £5.44bn ($8.7bn)[2] in 2008/09 and Fuel Duty which raised £24.6bn ($39.4bn) [9]. In addition motorists paid VAT which is estimates to have raised over £12bn ($19.2bn) as well as some taxes on insurance premia and in respect of company cars together amounting to about £3bn ($4.8bn) [10]. All this money goes directly to central government.

2.5. Figure 1 shows how tax receipts and expenditure in relation to traffic volumes changed between1975 and 2005. Whilst real receipts have kept up with traffic growth over this period spending slumped between the mid 1970s and has gradually reduced since. In 1975 almost two thirds of road user taxes was spent on roads but this fell to just one fifth by 2005. Moreover spending on the trunk road network has fallen more rapidly than spending on road administered by local highway authorities.

2.6. The fact that spending has fallen in recent years does not of itself mean that it is too low, but the fact that recently approved main road schemes have a B:C ratio of 6:1[11], that only about two thirds of the needed local roads maintenance is being funded and to clear the backlog would take ten years at the desired spending level [12]. indicates that the English road system is substantially underfunded.

[2] Using an exchange rate of $1.6:£1.

2.7. The increasing pressure on main roads is illustrated in figure 2. Traffic densities on Motorways have doubled since the mid 1970s, increased by 80% on all purpose trunk roads and by 50% on Principal Roads.

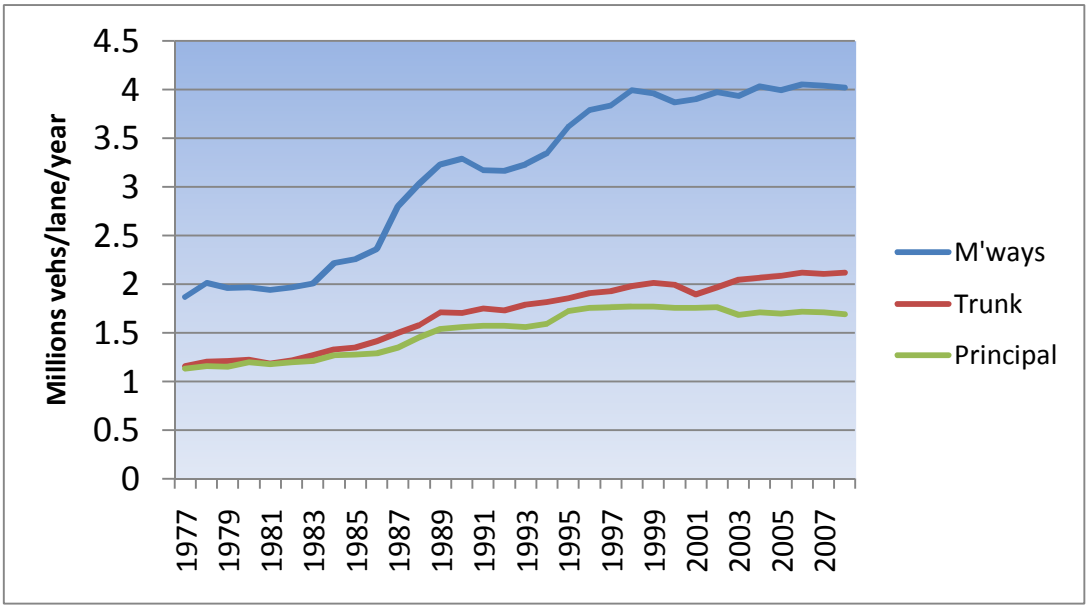


Figure 2 - Growth in Traffic Densities on Britain's Main Road System, 1977 - 2008.

2.8. Increased traffic means greater congestion and reduced reliability - which is of particular concern to commercial road transport. The costs of congestion are difficult to estimate but a survey of British businesses in 2008 yielded a figure of £23.3bn ($37.3bn) a year [13]. If the non-business costs are added to this the total must be in the vicinity of £30bn ($48bn) annually. The growing road maintenance backlog, rising congestion and falling levels of expenditure in relation to traffic levels suggest that the existing arrangements for the governance and funding of Britain's highway network are not serving road users well; and a different regime is need which will align provision and operation of the infrastructure more closely with the needs of users. The UK's roads are ranked only 35th in the world by the World Economic Forum [14].

## 3. SOME LESSONS FROM OTHER COUNTRIES

3.1 Whilst this situation is not exclusively British and is to be found in many other countries a variety of techniques have been used to manage roads and traffic in ways that provide adequate funding for roads operation and development - linked to better focused means of payment. Toll roads are increasingly used to provide additional main highway capacity with about thirty thousand kilometres in operation in Europe [15]. These can be financed privately and are most useful for longer inter-urban routes however with the use of automatic payment systems like tele-passes or Automatic Number Plate Reading they can have more local applications without the problems of land take and delays occasioned by toll plazas. There is one such toll road in Britain (the Midland Expressway) which is financed privately and provides valuable relief to one of the most congested sections of the

national motorway system. However its use is low compared with 'free' motorways and has yet to achieve financial viability for its operator.

3.2. Area wide pricing is in operation in Singapore, London and Stockholm and a national scheme has been planned for the Netherlands [16]. However this has not been implemented following a change in Government in 2010 .

3.3. Distance based charging for lorries are operating in Switzerland, Austria, Germany, Slovenia and the Czech Republic [17] and cordon tolls are operational in the Norwegian cities of Oslo Bergen and Trondheim [18].

3.4. There are therefore a number of tried and tested ways of changing the management of road networks onto a more business like basis. The technologies have been demonstrated and public acceptability achieved when carefully designed.

## 4. EXPERIENCE FROM OTHER UK UTILITIES

Table 1 - Alternative corporate models in UK regulated utilities [3]

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

1. Network rail also receives network grants from the Department for Transport.
2. NI Water receives subsidies from the Department of Regional Development.
3. NATS Holdings Ltd (the holding company for providing air traffic control services) is part owned by a consortium of airlines, the Secretary of state for Transport, BAA plc and an employee trust.
4. The financial restructuring of NATS in 2003 - brought about by the downturn in business following 9/11 - involved additional equity investment of £65m ($104m) each from BAA plc and the Government.

4.1. The problem of inadequate investment have been has been tackled in other utilities in Britain by a variety of means. For the formerly nationalised industries of gas , electricity, telecommunications, water and the railways the problem of inefficiency, poor quality, opacity and the effects of the vagaries of public expenditure allocation have been tackled by creating new agencies outside government departments. These have defined powers

and duties and are regulated by independent, government appointed, regulators. In most cases the assets have been sold to private companies. In some cases these companies rely entirely on service charges for their funding whilst in others a subsidy is paid in respect of the wider social, environmental and economic benefits they provide.

4.2. Table 1 lists the range of corporate models employed for the regulated utilities in the UK. These exhibit differing levels of government involvement from completely private companies at one extreme to statutory corporations/government ownership at the other. In all cases there is a significant degree of regulation. The different models provide varying levels of public control and private financing and in some cases there have been changes in the way users pay for their services. For example the spread of metered water charges for households in place of a flat annual fee has had an impact on the consumption of water. But this hasn't been a major feature of the restructuring of the utilities in the UK.

4.3. The regulators fulfil two critical roles. Firstly they ensure that their utilities do not exploit their monopoly powers, where these exist, by ensuring they perform efficiently, provide the appropriate quantity and quality of service and charge consumers a fair price. Secondly they set operating and financial parameters that allow their utility companies to secure a fair return on assets and investment, provided they operate efficiently. This shields the utility companies from risks outside their control and allows investors to provide funds without fear of undue political interference.

4.4. As utilities generally have major infrastructure assets that require maintenance and development over long time periods regulators will usually require long term plans to be produced within which investment and financing programmes can be cast. Although the regulators are appointed by ministers they have statutory duties and answer to the courts rather than ministers. Whilst ministers have powers of guidance and direction these are limited by statute and are rather general in nature. It is a mark of success of this arrangement that regulators from time to time make politically unpopular decisions.

4.5. Of the examples given above, that for the national railways is perhaps the most relevant to the road network. The nationalised British Railways was funded on a year by year basis at a lower level than currently; the present regime provides both a higher level of funding and greater certainty for several years to come. In the early 1990s - prior to privatisation annual subsidy for the railways averaged £1.85bn ($3bn) [19] whilst over the last five years this has been running at £5½bn ($8.8bn)/year [20] (both at 2010 prices), moreover much of this additional funding has gone into infrastructure investment.

4.6. An important factor in this has been the involvement of private and independent agencies in the railway business. These include privately owned rolling stock leasing companies, privately owned train operating companies with franchises stretching over several years[3] and Network Rail. The network of contracts needed to make this regime work requires the Department of Transport to be clear and explicit about the sort of railway it is prepared to support. Most recently (July 2007) [21] this has taken the form of:-

[3] The longest franchise (Chiltern) runs for 20 years.

- a High Level Output Specification (HLOS) for improvements in safety, reliability and capacity for the next planning period (up to 2014);
- specific programmes of investment to be undertaken in the period up tom 2014 which will produce benefits beyond 2014 and
- a Statement of Funds available for these improvements.
- a longer term look at demand growth to be addressed in the next HLOS in 2012.

4.7. This has provided a sound basis for operating and developing the national railways which they did not have during their half century as a nationalised industry. In the recent public spending review, which requires reductions in public expenditure in almost all programmes (the National Health Service and Overseas Aid being the two exceptions), capital expenditure on the railways is to grow by 20% (in cash terms) over the period 2010/11 - 2014/15 whereas transport capital spend falls by 2% and that on English trunk roads falls by 44% [22]. Undoubtedly the high degree of contractual commitment occasioned by the current regime has played an important role in shielding the railways against reductions in government support.

## 5. WHAT ARE THE FUNDING OPTIONS?

5.1. Over recent years, as identified is section 3, there has been a growth in various types of Pay As You Go (PAYG) charges for road use and these appear to be gradually becoming more acceptable [23]. These range from area/cordon pricing in London, Singapore, Sweden and some Norwegian cities to toll roads, bridges and tunnels to lorry charging schemes in Switzerland, Austria, Germany, the Czech Republic and Slovenia and effective technologies for remote monitoring and charging are increasingly available and affordable.

5.2. Direct charging for the use of the roads offers the prospect of relating payment more closely to the use of the roads and incorporating the marginal social costs of road use in the charging structure. Several studies of such systems have been done over the last fifty years in Britain and all have concluded that such a scheme would lead to much more efficient use of the roads as well as generating more than enough revenue to operate, maintain and develop the road network to provide a 'fit for purpose' system. An analysis carried out in 2007 [24]for the Eddington Study [25] concluded that in 2025 a national road pricing system would generate £28bn ($44.8bn) in annual benefits whilst cutting congestion by over half and reducing traffic and carbon emissions by 7%.

5.3 Estimates by the author [26] indicate that revenues from such a PAYG scheme could be of the order of 10% greater than from the exiting tax regime if 'near optimal' charges were levied so it would be possible to provide substantial revenues to the Exchequer as well as paying for a much improved road system. It would seem wise therefore to devise a regime which was capable of operating a PAYG system of charging for road use.

5.3. In the absence of a PAYG system of this kind there are other alternatives to the present system of road charging described above.

5.4. Ring fenced taxes are used in a number of countries including the United States of America, New Zealand and Japan [27] The proceeds are assigned to a specific fund which can be used to finance roads expenditure. The effectiveness of such an arrangement depends on the tax rate being sufficient to meet the costs of highway maintenance, operations and improvement and there being an independent body to ensure that it is used fairly and efficiently. The original Road Fund was an example of this in Britain but eventually lost out to the Treasury's dislike of hypothecation. Even in the USA, where the Highway Trust Fund served its road users well for many years, the refusal to raise Federal fuel taxes over recent years now means that it has moved from surplus to deficit. [28]. If ring fenced taxes are used as an effective means of funding highway expenditure then there must be a mechanism to ensure that they are adjusted from time to time to match the purpose for which they are intended.

5.5. Another possibility is a combination of government grants and the one or more sources of revenue along the lines of Network Rail. Here the government provides funds to Network Rail towards the cost of operating, maintaining and developing the national rail infrastructure in addition to the monies from property transactions and track access charges - paid by the train operating companies. In 2007 out of total revenues of £5.8bn ($9.3bn) government grants amounted to £3.23bn ($5.17bn) - 56% [29]. Additional sources of revenue in respect of the road system could take the form of hypothecated taxes or direct road user charges.

5.6. A further alternative is shadow tolls. A form of this is already in operation in Britain as part of a series of Design, Build, Finance and Operate (DBFO) contracts on Highways Agency Roads. In these the private contractor takes over responsibility for the maintenance and operation of a section of road including, where appropriate, the design and construction of specified improvement schemes. The income to the concessionaire is in the form of a payment from the Highways Agency related to the volume of traffic carried on the road and some aspects of the performance of the section of road in question (e.g. traffic delays, asset condition and handling of incidents) over the 30 year life of the DBFO. Currently about 11% of the English trunk road network is the subject of DBFO concessions with a net present value of about £7bn ($11.2bn). The most important of these is the widening of 102kms of the M25 orbital road around London [30] [31]. The contracts between the Highways Agency and the concessionaires ensure that, subject to satisfactory performance by the concessionaire, there is a revenue stream over the life of the project to fund operations, maintenance and planned improvements. This approach is now being used in other European countries [32].

5.7. There is no practical reason why such an arrangement could not be extended to cover more, or all, of the trunk road network. Indeed, by guaranteeing funding of parts of the network, a two tier system is created where the effects of variations in the Highways Agency funding must fall mainly on the non-DBFO sections of the network. As the proportion of network subject to DBFOs grows, the vulnerability of the remainder is increased given reason to put the entire network onto a DBFO basis - rather like the National Railways.

## 6. WHAT ARE THE OPTIONS FOR A NEW MAIN ROADS AGENCY.

### 6.1. A Central Government Agency

6.1.1. The English trunk roads are already managed by the Highways Agency (HA) which is an Executive Agency of the Department for Transport (DfT), and is responsible for operating, maintaining and improving the strategic road network in England on behalf of the Secretary of State for Transport. It is specifically charged with managing traffic, tackling congestion, informing road users, improving safety, minimising adverse impact on the environment and developing the road network. However between 1999 and 2009 its network shrank by 20% - to just 3% of the total and the rate of new road construction has been declining as shown in figure 3. The limited capacity expansion that is taking place is through widening the most hard pressed sections of existing motorways and active traffic management (including hard shoulder running) on other busy sections.

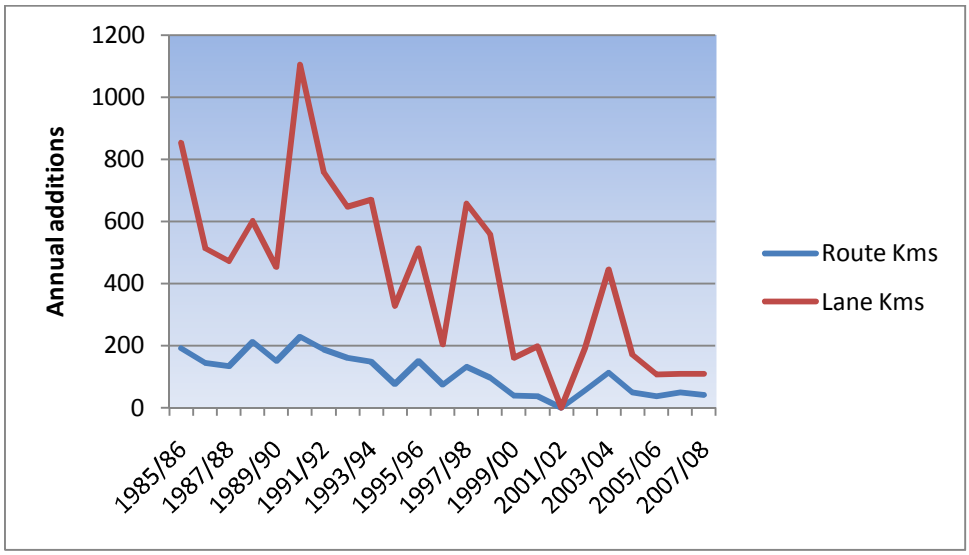


Figure 3 - New English Motorway & all purpose trunk road construction and improvements.

6.1.2. The HA could retain its present status as a government agency with strategic duties and powers to undertake long term development of its network and borrow for this purpose, or it could be reformed as a Non Departmental Public Body which 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 accordingly operates to a greater or lesser extent at arm's length from ministers" [33] and could have an independent board of management. However it is difficult to see how such a body would be excused the vagaries of the normal public spending controls unless it had its own revenues raising capabilities. One example of a central public agency that raises its own revenue is the BBC which raises £3½bn ($5.6bn) a year through licence fees [34]. This is more than the HA's spending of £3.2bn ($5.1bn) in 2009/10; and a fee replacing the current VED could provide a similar arrangement. Whilst such an regime 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.

### 6.2. A public corporation or public trust

6.2.1. 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.

6.2.2. This could be given powers to make charges to users and to issue debt: similar to the London Passenger Transport Board which between 1933 and nationalisation in 1948, was 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 or NavCanada, the Canadian body delivering air traffic control services, which was considered as a possible model for UK air traffic control. 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.

6.2.3. 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. If a significant portion of the funding were to come via the government then it is likely to insist on a strong measure of control over the body which risks the body being classified in the public sector. The consequence of this is that its budgeting would become entangled in the general public expenditure process.

6.2.4. If such a body were to receive 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 debts of National Air Traffic Services and of Network Rail are classified to the private sector.

6.2.5. There are clearly a number 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.

6.3. A private regulated utility

6.3.1. This arrangement would be 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 way of funding network improvements. This would undoubtedly require independent, public interest regulation. It is worth noting that changes in the structure of the financial markets 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.

6.3.2. 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. However if the body received its income directly from user charges this problem would disappear.

## 7. THE DUTIES OF A NEW ROADS BODY

7.1. Whatever its formal constitution, if a separate roads body is created it should be given statutory duties to manage, 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.

7.2. 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.

7.3. 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 (including any wider public interest considerations specified by government) 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.

7.4. In the absence of direct 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 also determine an approved investment programme, and agreed output 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.

7.5. Any form of direct charging on one 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.

7.6. Tolled motor roads operate without excessive diversion in several continental countries although sections close to large cities are often toll free. A 1p/km (1.8c/km) toll on trunk roads in Britain would yield £1½bn ($2.4bn) year so to fund the HA at £4½bn/year ($7.2bn) - 40% above the current level - would require an average toll of 3p/km (4.8c/km) - less for cars and more for lorries. An average car costs about ten times this to operate [35] and, given the time advantage of using motorways and high quality trunk highways over ordinary multi-use roads, a differentiated tolling system should mean that potential problems of unwanted diversion should be manageable.

7.7. 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.

7.8. The problem of diversion from priced to un-priced roads would disappear if a general PAYG road pricing scheme were introduced and this would improve the efficiency of the road network as a whole. However as the roads body would be responsible only for the main roads the proceeds from road pricing would have to be shared with local highway and transport authorities and the national exchequer. This could be done by the roads body or an independent clearing house - according to rules derived from the rationale of the road pricing regime.

## 8. THE PREFERRED OPTIONS

8.1. There is a range of possibilities for reform as illustrated in table 2.

Table 2 - Options for coverage, governance, charging and sequencing [3]

| | Central government body (CGB) a | CGB & shadow tolls b | Public corporation & shadow tolls c | Public corporation & user charging d | Private utility with shadow tolls e | Private utility with user charging f |
|---|---|---|---|---|---|---|
| Individual Motorways | x | x | x | immediate | x | immediate |
| All Motorways | x | x | x | immediate | x | immediate |
| Roads of National Importance | x | immediate | immediate | immediate | immediate | immediate |
| Strategic Road Network | Immediate, with user charging long term | Immediate, with user charging long term | Immediate, with user charging long term | Long term | immediate | Very long term |

8.2. Reforming the governance and funding of the main road network 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. This would include all HA routes and a the busiest A roads, probably about 15k kms in England and about 20k kms if Scotland and Wales were included in the scheme (the busiest 5% of the road network).

8.3. 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 road system where economically justified, either by more intensive management or building new physical infrastructure. There may be some instances where funding non-road projects is best value for money. 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.

8.4. 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.

8.5. 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'. Indeed it is not necessary to sell the network as it could be licensed to a private concessionaire for a initial term of say thirty years.

8.6. An additional 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 its licensing or sale. The yield would obviously depend upon: the earning potential of the assets on offer; the perceived severity of the regulatory regime in relation to setting charges; and the expected 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. This leads to the conclusion that the best course of action is either option 'd' or 'f' in table 2 depending on how the balance between public accountability and the need to raise funds for the Exchequer is made.

8.7. 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 network, 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.

8.8. The alternative to consideration of reform of the kind 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 UK House of Commons Select Committee on Transport remarked in March 2010 [36] "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" 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".

## 9. CONCLUSIONS

9.1. Population growth, economic development and increased trade are leading to growing demand for the movement of goods and people: especially in the developing world. Most of this is and will continue to take place on roads. Whilst government agencies attempt to manage and develop their national road system to accommodate this

growth too often they fail to keep up with it resulting in growing congestion and environmental damage and increases in road accidents. Where governments have been most successful in dealing with this problem they have often employed novel ways to raise funds for roads or manage demand or both.

9.2. Britain, with its densely trafficked main roads, provides a good example of this disconnect between the demand for and provision of a high quality national road system and a strong case for reform of governance and funding. Paradoxically the UK has been at the vanguard of the reformation of public services and enterprises in recent years with extensive deregulation, liberalisation and privatisations including airports, national railways, telecommunications, gas, electricity, air traffic control. Experience from those countries that have introduced new ways of operating their road systems and with other public services and utilities in the UK help show the way for roads reform in Britain.

9.3. A variety of alternatives for reform have been considered including:

- a strengthened and more independent development of the existing Highways Agency funded by government grant/shadow toll revenue;
- a public corporation or trust with statutory duties and powers funded by shadow tolls;
- a public corporation or trust with statutory duties and powers funded by direct user charges;
- a regulated private utility with shadow tolls and
- a regulated private utility with direct road users charges.

9.4.. The use of direct charges rather than shadow tolls or some form of grant would have the advantages of:

- managing demand and reducing congestion and other 'externalities';
- providing an appropriate level of funding from improvements and signalling where these are worthwhile and
- creating a capacity for a more commercial approach including borrowing to fund investments.

9.4. A not for profit public corporation or trust would not be concerned about 'profiteering' from exploiting a public asset whilst a private utility could have a substantial sale value (depending on its net revenue prospects) and any move towards exploiting its monopoly position should be checked by the regulator.

9.5. Either a public corporation or privatised regulated utility funded by direct user charges would be a distinct improvement on the existing arrangements in Britain and result in a more efficiently provided and managed main road network capable of being developed to meet the country's changing needs. Infrastructure provision and use would be in better balance, demand would be moderated to reflect its economic worth, road users could be confident that they are getting value for money and governments would not be troubled by the financial and political problems of national roads planning and management.

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Abstract in French

## D'ADMINISTRATION ET DE FINANCEMENT DES ROUTES

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Le document aborde la question de savoir comment améliorer le gouvernement et le financement des réseaux routiers principaux en ce qui concerne plus particulièrement la Grande-Bretagne. Les dispositions existantes sont décrites ainsi que les problèmes qui sont actuellement inscrits dans le système britannique de la route principale. Après avoir examiné certains développements à l'étranger et avec d'autres services d'utilité publique récemment réformé au Royaume-Uni, les options pour réviser la manière dont les routes principales de Grande-Bretagne sont gérés et payés sont prises en considération. Celles-ci s'étendent d'une agence du gouvernement central à travers à une utilité de gestion privée réglementée. Option de paiement incluent subvention du gouvernement, les recettes fiscales qui sont anneau clôtures, péages fictifs, les péages traditionnels et imputation directe utilisateur (par répartition). Comment la transition du régime existant à un nouveau régime est également discutée. On le conclut qu'une utilité ou société anonyme par actions contrôle par l'Etat qui est en privé actionné mais publiquement réglée et qui couvre le réseau routier national principal et charge directement pour un usage routier avec un régime de tarification efficace sont les options privilégiées car ceux-ci assureraient un financement adéquat, une gestion efficace, l'utilisation et le développement du système et le transparent et responsabilité approprié.