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Funding roads for the future

Creating a more productive and sustainable road network in England

January 2018

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CEO'S FOREWORD

One cannot stress enough the importance of roads to the success of the UK. They play a critical role in moving goods and ensuring all of us are able to get to our destination. The consequences of not having a well-functioning road network are severe, both to our quality of life and the country's economic performance.

We also heavily rely on the road network's interconnectivity to access other transport modes, such as railways, ports and airports. In fact, most journeys touch the network at some stage – roads provide a degree of versatility compared to other modes of transport, particularly at the beginning and end of a journey.

This inter-model connectivity, and the role it plays in enabling economic growth, means we must ensure that our existing and future road networks are fit-for-purpose. With the UK Government focused on navigating the Brexit process in the short to medium term, and on rebalancing the economy in the longer term, now is the right time to critically review how our roads are funded and how we can create a more productive and sustainable road network long into the future.

When doing this we will need to take into account the huge changes coming our way – and in some instances already here – including electric vehicles and charging infrastructure, ride sharing, autonomous driving and platooning, and smart roads and their impact on our current funding arrangements.

This new report builds on previous ACE research from October 2013, *Funding roads: reducing inefficiency and securing investment in roads for future generations* and dives into the issues facing the Government suggesting a realistic set of tangible recommendations to address the challenges facing the network in the next 20 to 25 years.

I would like to take this opportunity to thank the extremely knowledgeable ACE Roads Sector Interest Group for their input into this report which we at ACE are proud to present, on behalf of all of our members, to the wider industry and government stakeholders.

Dr Nelson Ogunshakin OBE,
ACE President & Chief Executive

CHAIR'S INTRODUCTION

The ACE Roads Sector Interest Group brings together world class expertise and understanding of the UK roads' market and explores the many challenges facing those who design, build, operate and maintain the network.

Our roads provide the critical infrastructure that rests at the heart of our society. Urban networks are the arteries for vibrant and prosperous conurbations, whist the strategic road network provides essential connectivity between our major cities and international or economic portals.

Slowing rates of traffic growth in recent years are, in part, attributable to the economic slowdown and the rising cost of driving. However, it also reflects other issues to varying degrees – technological developments, changes to company car use, social trends and demographic shifts such as increased urbanisation. These diverse trends are bringing different and increasing demands to our road networks that will require pro-active and agile thinking.

The 2017 CBI|AECOM Infrastructure Survey highlighted the ability to deliver continued investment in the road network as a critical priority for the UK Government. With over two-thirds of respondents citing a lack of confidence that investment will improve within the current parliamentary period, it is clear that many perceive the challenges that lie ahead as a looming crisis. However, I see them as an opportunity. An opportunity to think differently and create the funding framework needed to deliver a safe, sustainable road network that is fit-for purpose and which leaves a lasting legacy for future generations.

Delivering these commitments today will unlock prosperity in the years ahead, but this will only be realised if the Government and industry work together.

Dave Beddell,
Managing Director - Strategic Highways (Europe) at AECOM
& Chair of ACE's Road Sector Interest Group.

EXECUTIVE SUMMARY

This report focuses on the UK Government's responsibilities in relation to roads. Unlike in Northern Ireland, Scotland and Wales where roads are a devolved matter, the UK Government is responsible for the network in England, in addition to collecting revenue from taxes related to their use in the UK.

England's road network is probably the UK Government's most valuable public asset. However, we have seen four decades of under-investment in roads following the end of the motorway building programme in 1975. This saw investment levels dip to 50% of 1975 levels in 2000, and 75% in 2011, despite usage of the nation's motorways being amongst the highest in the world.

The UK Government's efforts to improve England's road network over the past few years have been positive. The announcement to establish a 'National Road Fund' and the first Road Investment Strategy (RIS1) provides improved certainty, particularly after the years of under-investment.

However, revenue from taxes related to roads is drying up. The growing uptake of zero-emission vehicles means revenue from Vehicle Excise Duty and Fuel Duty will continue to decline as a percentage of the UK's GDP in the future. This creates problems for the funding of roads, particularly with commitments to ringfence revenue raised from Vehicle Excise Duty in England to the national road network.

> *The growing uptake of zero-emission vehicles means revenue from Vehicle Excise Duty and Fuel Duty will continue to decline as a percentage of the UK's GDP in the future.*

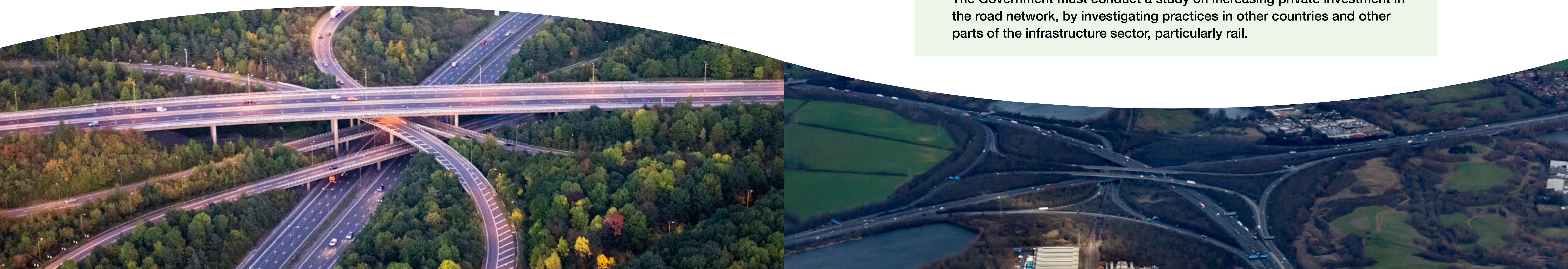
An area that is particularly struggling in England is the funding of local roads. While these roads represent 98% of the network by mileage and carry two-thirds of traffic, the tight budgets of local authorities mean they often miss out on the investment required.

Going forward, congestion will be a major issue for England's road network. In fact, the UK Government expects congestion to increase 63% by 2030. Therefore, the Government needs to look at new options to ensure England's road network is fit-for-purpose for the future with budgetary constraints. Promoting private investment in the road network, and giving more tools to local authorities for road funding are two options the Government must explore.

ACE makes a series of recommendations in this report for the UK Government to improve how England's road network is funded and how revenue from taxes associated with roads can be sustainable for future needs. Below is a summary of these recommendations.

Recommendations

- **The Government must introduce dynamic road user charging in the UK over the long-term, with a suggested start date of 2030. The complexity of introducing a new road taxation model in the UK means the Government must take the initial steps now to implement such a scheme.**
- **In the meantime, the Government must introduce reforms to Vehicle Excise Duty and Heavy Goods Vehicle (HGV) Road User Levy to ensure these taxes raise sufficient revenue for the National Roads Fund from 2020-21.**
  - Reforms to Vehicle Excise Duty must ensure sufficient revenue is raised in light of the expected significant uptake of zero-emission vehicles in the next decade.
  - Reforms to HGV Road User Levy must remove offsets against Vehicle Excise Duty for UK-registered and introduce a dynamic per-distance charge (with a range of variables) instead of the current per-day charge.
- **The Government must also increase the overall funding for England's local roads. The establishment of a Local Roads Fund, ringfenced through a proportion of revenue from Fuel Duty, would be a medium-term solution to improving the quality of local roads in England.**
- **The Government should develop a National Roads Strategy outlining the overall approach of all funding programmes for roads, including how investments can unlock productivity and achieve broader economic benefits.**
- **The Government should increase the number of Road Investment Strategy 2 (RIS2) performance metrics focused on reducing congestion and increasing the productivity of the Strategic Road Network.**
- **The Major Road Network should be designed in a flexible and agile way, where local roads can be easily added to the national network when there is a strong case that further investment will unlock productivity in underperforming areas.**
- **The Government should significantly increase its investment in the smart motorways programme, given the programme's recent success at reducing congestion and making roads safer.**
- **The Government replaces the Community Infrastructure Levy (CIL) with a better designed Local Infrastructure Tariff, in line with the CIL Review Group's recommendation.**
- **The Government must conduct a study on increasing private investment in the road network, by investigating practices in other countries and other parts of the infrastructure sector, particularly rail.**



CONTEXT

This report discusses how the UK Government can improve England's road network. In the UK, road investment is a devolved matter with devolved administrations receiving funding from the UK Government to look after their roads. The UK Government is responsible for England's road network and for collecting revenue from a range of road taxes across the UK. Therefore, this report focuses on the responsibilities of the UK Government.

Roads are critical to the success of any economy. Most transport journeys take place either entirely on the road network or use it to access other transport modes. Roads are the most versatile form of transport infrastructure, enabling a wide range of journey types to an even wider range of locations. The versatility of the road network means it can support the UK to adapt and evolve around future changes, an important attribute as the UK navigates through its withdrawal from the EU and focuses on rebalancing the country and economy in a post-Brexit world.

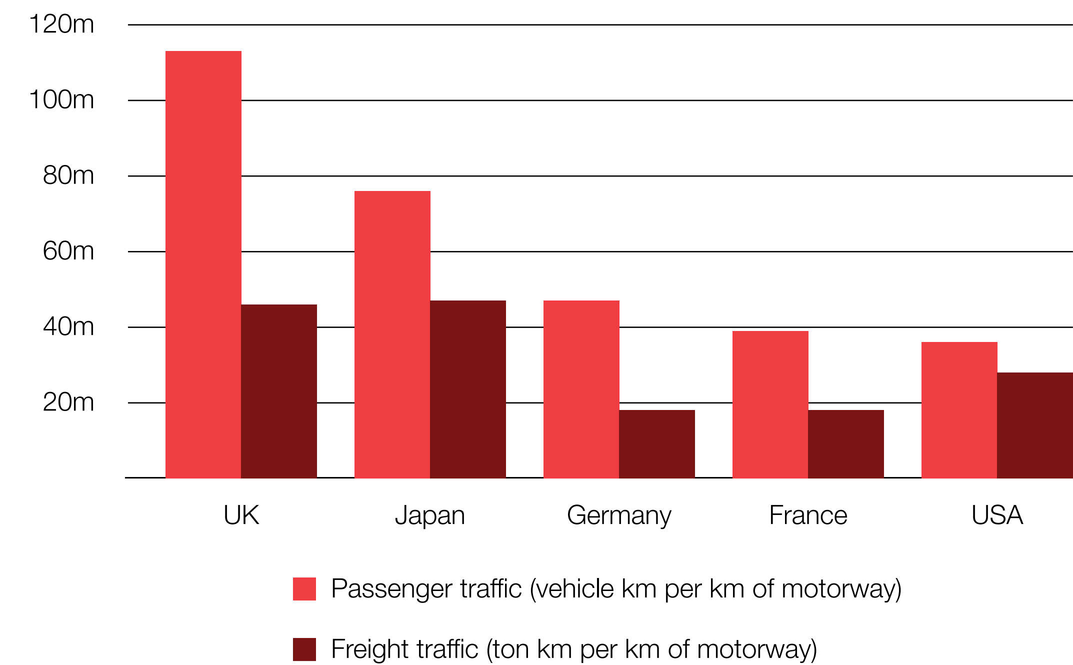
A generation of under-investment in England's road network

Following the end of the motorway building programme in the mid-1970s, the UK Government's investment in England's national road network fell sharply in real terms over the following four decades. By 2000, investment in national roads dropped to as low as 50% of 1975 levels, increasing to 75% of 1975 levels in 2011.[1] This is despite England's population growing by close to seven million people[2] and the wider UK economy growing by 225% over the same period.[3]

> *The level of demand on roads coupled with a sustained drop in roads investment over four decades has resulted in a road network in significant need of improvements.*

The drop in road investment over this time was not due to a shift in usage away from the national network nor a decline in its importance for the economy. By 2011, an average of 113 million passenger vehicle kilometres were driven in the UK each year per kilometre of motorway. The UK also carries more freight per kilometre of motorway[4] than any other economy aside from Japan.[5] Instead, the drop in road investment reflects the Government's previous 'feast-famine' approach to infrastructure funding that is still impacting the standard of transport infrastructure today (which includes the rail sector).

The level of demand on roads coupled with a sustained drop in roads investment over four decades has resulted in a road network in significant need of improvements. Over the past five years, the Government has answered this call and has significantly increased its investment in road infrastructure. However, to truly address four decades of under-investment, the Government's response cannot be a short-term solution and an increase in road investment must be sustained over the long-term.



Source: McKinsey and Company, 2011

Recent efforts improving England's road network

In England, the UK Government has recently taken some positive steps towards recognising the importance that roads play to the economy. The announcement to establish a 'National Roads Fund' and the introduction of RIS1 provides much needed certainty by enabling a pipeline of road projects in England, particularly after years of under-investment. RIS1 has helped to provide a vision of stable funding for the national road network in England, and has established performance standards for the reformed Highways England and the Strategic Road Network (SRN) to be measured by.

The Government also released a Transport Investment Strategy in July 2017. The strategy provides a framework for investment decisions, which responds to transport investment related aims of the Government's Industrial Strategy. The strategy makes the following key commitments:

- **Continue to rely on devolved decision making for transport investments**
- **Consulting on a new 'Major Road Network' – a middle tier of important A-Roads**
- **A new decision-making framework for infrastructure changes in the next investment period**
- **A new role for sub-national transport bodies to shave investment strategies for the national road network**

The future for England's road network

Despite positive steps, usage of the road network in England will continue to grow and there is more to do if the UK Government wants to maintain or improve the standard of the road network in England, particularly in regard to the network's capacity. The Government estimates traffic on England's roads could increase by up to 55% by 2040.[6] From this increase, the Government's forecasts estimate congestion on the SRN could result in a cost of up to £10 billion per year and 28 million working days in lost time.[7]

There are already a number of emerging technologies that will have a big impact on the network, the introduction of autonomous vehicles being the obvious example.

Traffic on England's roads to increase to

55% by 2040

Congestion on the SRN could cost up to

£10bn per year

and result in 28m working days in lost time

Source: UK Government's Transport Investment Strategy

The Government must also prepare for changes to how the road network in England will be used in the future. There are already a number of emerging technologies that will have a big impact on the network, the introduction of autonomous vehicles being the obvious example. Broader changes to other transport modes and the community's transport needs may also result in the dominant user of the national network shifting from personal to freight vehicles.

With the UK Government planning for RIS2, the timing is right to focus on how we can create a more productive and sustainable road network for the future.

The above changes highlight it will be an uphill battle to improve the road network in England. However, roads in England are too important to the success of the economy and the Government must remain focused on finding and implementing ways to improve the quality, performance and productivity of roads. This includes reforms to the funding, financing, ownership and taxation of roads, accounting for technological and behavioural changes. With the UK Government planning for RIS2, the timing is right to focus on how we can create a more productive and sustainable road network for the future.

CURRENT CHALLENGES FACING THE ROAD NETWORK IN ENGLAND

A decline in revenue from road taxation over the medium to long-term

A road network needs to be underpinned by a sufficient, sustainable and equitable tax base to provide certain and secure funding to pay for maintenance and improvements. Well-functioning road taxation arrangements are even more critical if the Government also wishes to spend revenue raised from road usage on other services and still have a good quality road network.

While recent commitments to establish a National Roads Fund in England have been positive, the next step for the Government is ensuring revenue raised for this fund, and the funding for local roads in England, is appropriate for today and the future. This can only be achieved by ensuring current road taxation arrangements are effective and the revenue raised is being spent in the best way possible.

How we pay for roads also influences the user's perception of customer amenity. On other transport modes, particularly rail and aviation, a user makes a physical transaction and considers themselves a customer of that network, and will associate the level of service provision received accordingly. This has been the experience in Norway and Sweden, where surveys on toll roads introduced indicate that users are now seeing a benefit to paying for toll roads and support these charges when revenue is being reinvested back into the transport network.[8]

> *Changes introduced to Vehicle Excise Duty in 2001 and 2017, and the uptake of new technologies, such as electric vehicles, mean road taxation is facing a number of challenges going forward.*

In the UK, road taxation is currently made up of three key elements: Vehicle Excise Duty, Fuel Duty and Heavy Goods Vehicle Road User Duty. These taxes are not currently ringfenced for investments in the road network and are also spent on other services, however the Government has made a commitment to invest all revenue raised from Vehicle Excise Duty in England into the National Roads Fund from 2020-21.

Additionally, London has introduced vehicle congestion charges in the central area, and also recently a 'Toxicity Charge' (T-Charge) for vehicles of particular standards in the same central zone. Local authorities have also been able to charge developments a Community Infrastructure Levy since 2010 to pay for infrastructure needs in these areas.

Recent reforms, such as changes introduced to Vehicle Excise Duty in 2001 and 2017, and the uptake of new technologies, such as electric vehicles, mean road taxation is facing a number of challenges going forward – primarily through a significant decline in revenue raised over the long-term. Further detail about the challenges for the three current key elements of road taxation are outlined under the headings below, with reform opportunities outlined in the next chapter.

Vehicle Excise Duty (VED)

VED is a tax on the ownership of a vehicle with costs varying based on a vehicle's CO2 emissions. The link between CO2 emissions and VED costs was first introduced in 2001, with additional reforms in April 2017 widening the cost between low and high emitting vehicles. Today, a car with no CO2 emissions will have no VED costs, whereas a car emitting over 255 grams of CO2 emissions per kilometre will cost £2,000 in the first year and £140 in subsequent years.

> *While revenue from VED is expected to rise slightly over the next five years in the UK from £6.0 billion in 2017-18 to £6.8 billion in 2022-23, the current structure of VED and the inevitable uptake of zero-emission vehicles in the future will see revenue from VED decline as a result.*

While revenue from VED is expected to rise slightly over the next five years in the UK from £6.0 billion in 2017-18 to £6.8 billion in 2022-23,[9] the current structure of VED and the inevitable uptake of zero-emission vehicles in the future will see revenue from VED decline as a result.

The Government's ban on the sale of new petrol and diesel vehicles from 2040 and industry expectations that a switch-over to electric vehicles will happen in the mid-2020s when they will out compete other vehicles on price[10] highlights why VED will largely become an empty pot of money based on its current structure.

A decline in revenue from VED becomes an even more pressing issue with the Government's commitment to guarantee revenue raised from VED in England for the National Roads Fund.

The Government must urgently look at further reforms to VED to ensure it can be a sustainable revenue stream for the National Roads Fund in the future. Alternatively, the Government should look at other tax options that can be guaranteed to the National Road Fund in England, such as a form of road user pricing.

> *A decline in revenue from VED becomes an even more pressing issue with the Government's commitment to guarantee revenue raised from VED in England for the National Roads Fund.*

Fuel Duty

Fuel Duty is a tax that individuals pay through the pump from their car's fuel usage. Reductions or rebates on Fuel Duty apply to local bus operators and construction and farm vehicles. Fuel Duty rates vary based on fuel type, with petrol and diesel being taxed at close to 58 pence per litre. These rates have been frozen since 2010-11, and despite the Government's intention to start increasing the duty annually in line with inflation, the Office for Budget Responsibility (OBR) view this as a 'policy risk' given the Government's repeated decisions to cancel planned increases in recent years.[11]

> *Revenue raised from Fuel Duty will also see a hit from the Government's ban on the sale of new petrol and diesel vehicles from 2040.*

Fuel Duty is expected to collect £27.9 billion in 2017-18 and £30.6 billion in 2022-23 across the UK,[12] noting OBR's caution if the latter figure will actually be achieved. It's also worth noting that while revenue from Fuel Duty is expected to increase over the medium-term, the percentage of revenue raised compared to the UK's GDP is expected to drop from 1.4% to 1.3% over the next five years.

Similar to VED, revenue raised from Fuel Duty will also see a hit from the Government's ban on the sale of new petrol and diesel vehicles from 2040. Along with industry expectations that electric vehicles will start to dominate the market from the mid-2020s, the trend of cities looking at banning petrol and diesel vehicles in certain areas before this date and London's T-Charge means the Government must start looking at alternate revenue sources from the use of vehicles in a post-Fuel Duty world.

Unlike VED, the Government has made no commitments to ringfence any revenue raised from Fuel Duty to improving the road network. This is a missed opportunity, particularly for England's local roads suffering from years of under-investment due to the tight budgets of local authorities. The funding difference between local roads and the SRN means the Government is at risk of creating a two-tier road network in England, where there is a significant gap between the quality of the SRN and the local road network.

Heavy Goods Vehicle (HGV) Road User Levy

The HGV Road User Levy was introduced in 2014 to ensure these vehicles were making a sufficient contribution to the wear and tear of roads. For most UK-registered HGVs, VED costs are reduced by the levy amount owed, resulting in no overall increase in road taxation from these vehicles. Non-UK HGVs are required to pay the levy before entering the UK.

> *Whilst the concept of the HGV Road User Levy is positive, its inability to substantially contribute any revenue is an area of concern.*

The HGV Road User Levy has been frozen at £10 per day (or £1,000 a year) and had raised £46.5 million in revenue from non-UK HGVs by 2015. Current forecasts for the levy are captured with VED forecasts.

Whilst the concept of the HGV Road User Levy is positive, its inability to substantially contribute any revenue – particularly due to the offsets against VED for most UK-registered HGVs – is an area of concern. While part of the levy's intent was to balance against charges for foreign VED in other European countries, the outcome is the wear and tear caused by HGVs to the road network is not being sufficiently covered by this levy which is the primary intent.

The Government's recent commitment to update the levy is positive, and provides a good opportunity to further invest in road user charging, and using HGVs as a pilot for broader changes.

Challenges with other infrastructure taxes

Community Infrastructure Levy (CIL)

The UK Government introduced the power for local authorities in England and Wales to charge developments to help deliver infrastructure in the area. The CIL is a discretionary tool for local authorities, who have the power to set certain parameters around when it is and is not charged, however there are a number of exemptions in the enabling regulations. As of late 2016, there are 130 local authorities (31%) who are charging the levy with a further 88 (21%) working towards adopting a CIL.[13]

A key issue with the CIL is it is not raising as much revenue as was envisaged by the Government and local authorities when it was first introduced.[14] In fact, some have suggested that CIL is yielding between 5% and 20% of the funding required for infrastructure in development areas, leaving the balance with local authorities with their already tight budgets due to cuts to local authority grants since 2010.[15]

Shortcomings of the CIL are therefore putting enormous pressure on local authorities to keep pace with infrastructure requirements from new developments, particularly impacting the local road network.

A lack of public investment in England's road network

Local roads in England

Local roads in England are in a worrying state. Local roads carry two-thirds of England's road traffic and comprise of 98% of the overall network by distance.[16] Some of these local roads are critical to the economy, providing key links between important infrastructure and services to the rest of the country.

The public is well aware of the importance of local roads, with 34% of people consulted in the 2017 CBI/AECOM infrastructure survey seeing the delivery of improvements to the local road network as critical.[17] Yet, as pointed out by the Jeffreys Road Fund in October 2016, these local roads struggle because they do not benefit from the same long-term planning as the SRN and often lose out on much needed funding with budgets for local authorities being squeezed.[18]

The UK Government's commitment to consult on establishing a second-tier 'Major Road Network' (MRN) of strategically important local roads and funding them through the National Roads Fund has the potential to help address some of these concerns, particularly if the MRN covers the 3,800 miles of A-Roads identified by the Rees Jeffreys Road Fund study. The Government has also recently made some positive funding commitments for local roads, with £244 million committed to 76 projects focused on addressing 'pinch points' and an additional £200 million predominately on repairing potholes and local highways maintenance.

However, despite these recent steps, the challenge of chronic under-funding of local roads remains. The value of local roads as feeder roads to the SRN and the future MRN should not be under-estimated. Very few end-to-end journeys happen exclusively on the SRN, and the same will be the case for the future MRN. Therefore it is critical that the Government is not creating bottlenecks or unsafe conditions for vehicles before they are able to access national road networks.

England's Strategic Road Network

While the UK Government's efforts developing a five-year investment plan for roads has been helpful in providing improved certainty, the limitation is that this is only benefiting the schemes that have formed part of the national road strategy over the past decade. While these roads do carry a higher percentage of traffic and make a significant contribution to the economy, they do only make up 2% of the network. Therefore, there is a strong case for the Government to add many more schemes to the national networks and the current planning for RIS2 is a prime opportunity to do so.

A lack of private investment in England's road network

Despite the UK Government being the global pioneer of private finance initiatives (PFIs) in the early 1990s, not many roads in England today are developed through private investment, particularly when compared to the scale of private investment in roads in other countries such as the United States, France, Canada and Australia.

In March 2016, the Government released data outlining there were currently 24 road projects funded through a PFI with a capital value of £5 billion.[19] When compared to the overall value of England's road network, this is quite a low percentage of investment coming from the private sector.

Poorly designed PFIs in the past is perhaps a reason why successive governments have not actively pursued private investment for road infrastructure. The reality is the Government is limited on what it can invest in road infrastructure from public funding, particularly when a range of other sectors are also in desperate need for support.

However, the Government can play a role in creating an environment that encourages more private investment in road infrastructure, by looking at new and innovative PFI models to make the UK a better place for private sector investment in road infrastructure.

Productivity issues from England's road network

Congestion

One of the most significant inefficiencies on the road network is congestion, particularly as this results in time not being used productively for other economic outputs. In 2013, ACE estimated the cost of time spent in congestion was approximately £9.43 billion per annum.[20] With the Centre for Economic and Business Research forecasting that the traffic congestion in the UK will continue to grow by 63% by 2030,[21] issues relating to congestion will compound into the future if they are not addressed.

The Government has established performance metrics in RIS1 for areas where Highways England can help reduce congestion, such as 97% of the SRN being available to traffic at all times and 85% of motorway incidents being cleared within one hour. However, there are no current targets for delays (time lost per vehicle per mile), reliability of journeys and average speeds of vehicles on the SRN, or targets for local authorities to address congestion on local roads in England.

HOW CAN THE GOVERNMENT ADDRESS CHALLENGES IN THE ROAD NETWORK?

There are a number of actions the UK Government can take to tackle the inefficiencies in the road network that have been outlined in this report. ACE recommendations for addressing these challenges are outlined below.

Further reforms to VED to increase revenue for the National Roads Fund

ACE recommends the Government introduces further reforms to VED to ensure the tax can raise sufficient revenue for the National Roads Fund from 2020-21.

The UK Government's decision to ringfence funding for the SRN and proposed MRN makes a lot of sense, however its benefits will be undermined if the revenue source is not sustainable.

Reforms introduced in April 2017 were a step in the right direction, particularly by better balancing environmental objectives with the needs of the National Roads Fund. However, even with these changes, revenue raised from VED in England will not keep pace with the future needs of the national road network.

One option is for the Government to phase in VED costs for zero-emission vehicles over the next ten years, at a time when this type of vehicle is able to compete with petrol and diesel vehicles on price. The Government will be much better off by taking advantage of market forces to incentivise the uptake of zero-emission vehicles, as opposed to taking a hit on the budget bottom line.

This option should be structured in a way that ensures forecasts of VED revenue are growing at pace or above inflation beyond 2040 when the sale of new petrol and diesel vehicles are banned in the UK. The test for the Government will be ensuring that revenue from VED as a percentage of the GDP does not reduce.

A new Local Roads Fund – ringfencing funding to improve the quality of local roads

ACE recommends the Government establishes a new Local Roads Fund to replace the current complex web of funding programmes for England's local roads. The Local Roads Fund should be funded by a proportion of revenue raised from Fuel Duty.

Local roads are an undervalued component of the road network and a significant increase in funding to improve their quality is desperately required. Local roads are falling into a state of disrepair because local authorities are struggling to find funding to pay for their upkeep, particularly in light of the UK Government's cuts to local authority grants since 2010.

Local roads funding from the UK Government is confusing, involving a complex web of funding programmes. For example, the Government's funding of local roads in England can come from the National Productivity Infrastructure Fund, the Pothole Action Fund, the Large Local Majors Fund and the Local Highways Maintenance Incentive Fund to name some. With such a complex and ad hoc approach to funding local roads in England, it is easy to see how some local roads can fall between the gaps.

To avoid local roads falling behind, the establishment of a Local Roads Fund to pay for road maintenance and improvements would go some way to mitigating this risk. A Local Roads Fund, structured in a similar way to the National Roads Fund for the SRN and the proposed MRN, would be a very effective approach for the Government to provide funding for local authorities, local highway authorities or city regions to exclusively invest in improving local roads.

Funding from a Local Roads Fund would need to be split between road improvements and road maintenance. For road improvements, the Government could structure the fund in a way that encourages local authorities to bid for funding by demonstrating how the investment will unlock productivity and ease congestion. For road maintenance, a funding model could be established based on the number of miles of local roads in a local authority or similar measurements.

To ensure the Local Roads Fund is effective, the Government could follow a similar model as the Local Highways Maintenance Incentive Fund where local authorities are to complete self-assessments to demonstrate their need and how they spend funding in a value for money way.

A proportion of Fuel Duty would be an ideal revenue stream for the Government to ringfence for the Local Roads Fund, particularly as this is a tax collected from the use of vehicles predominately on local roads.

Lastly, as is the case for VED, any ringfenced funding from Fuel Duty will need to consider reductions in revenue from Fuel Duty in the future, and look into alternate sources of funding, such as road user pricing.

Develop an overall National Roads Strategy

ACE recommends the Government develop a National Roads Strategy outlining a coordinated overall approach for all roads funding programmes.

Unlike other transport modes, such as rail and aviation, the UK Government does not provide a high-level strategic overview of its approach to roads. As a result, outside of the national road network, the Government's approach to roads compared to other funding programmes can come across as disjointed and reactionary. A National Roads Strategy, looking at both the SRN, the proposed MRN and other roads, would go a long way to ensuring there is a more coordinated approach to the UK Government's funding of roads.

A National Roads Strategy should also look at the broader objectives of investments, including unlocking productivity and wider economic benefits from road projects.

Reform the HGV Road User Levy

The UK Government has already flagged its intention to work with industry to update the HGV Road User Levy. This decision is positive considering the HGV Road User Levy is raising little revenue, due to offsets against VED for UK-registered HGVs.

The logic of the HGV Road User Levy is sound – ensuring vehicles that cause additional damage to the road network contribute to maintenance costs. Perhaps due to an additional goal to balance up some inequalities for UK-registered HGVs with road usage costs abroad, the in-practice application of this levy to foreign HGVs is its biggest limitation.

ACE recommends the Government investigate applying the HGV Road User Levy to all HGVs operating in the UK road network, without offsets against VED for UK-registered vehicles.

To address disadvantages for UK-registered HGVs with road usage costs abroad, the Government could apply a higher rate for foreign HGVs (in lieu of any VED costs) or slightly reduce the VED costs for UK-registered HGVs. The latter option would ensure taxes for UK-registered HGVs were focused on the operation of these vehicles as opposed to their registration.

ACE recommends HGV Road User Levy reforms include a shift away from the per-day cost and embraces a per-distance cost with variables.

There are a number of technological solutions, such as improved vehicle tracking capabilities, that provide the opportunity for the Government to re-structure the current per-day cost of the HGV Road User Levy. The Government should consider using these technological solutions to introduce a dynamic road user pricing scheme. A dynamic road user pricing scheme based on per-distance costs could vary based on the vehicle's location, the time of day or congestion on the network, CO2 emissions and the size of the vehicle. A reform of this nature should also compliment changes to working time regulations for mobile workers (i.e. lorry drivers) to allow for better record keeping and enforcement of requirements.

ACE recommends the Government use reforms to the HGV Road User Levy as a pilot for the broader introduction of dynamic road user charging across the road network.

Using the HGV Road User Levy as a pilot for the broader introduction of dynamic road user charging across the road network allows the Government to address any teething issues prior to a full rollout.

Introduce a dynamic road user charging model over the long-term future

ACE recommends the Government takes steps now to introduce dynamic road user charging over the long-term future.

VED and Fuel Duty are at risk of becoming empty pots of money due to the uptake of electric vehicles in the UK. This prospect is extremely positive for the environment, but the Government must address this decline in revenue to ensure the road network is adequately funded. While some minor changes to VED will help, the real challenge will be replacing Fuel Duty with a viable and long-term revenue source. The scale of this challenge, which currently represents 1.4% of the UK's GDP, means the Government must prepare for a post-Fuel Duty world now, and the clear answer is the introduction of dynamic road user charging.

In the past the idea of taxing vehicles at the point of registration through VED or at the pump through Fuel Duty made a lot of sense. It was the fairest way to ensure the cost of the road network was spread amongst all users with the limited technology available. However, today there are a range of new technologies that can allow us to tax vehicles in a smarter way, as seen with the introduction of London's Congestion Charge and T-Charge.

The Government should look into implementing dynamic road user pricing for all vehicles in the future. The introduction of a new road taxation model creates endless opportunities to influence how vehicles use the road network, by structing charges based on the vehicle's location, the time of day or congestion on the network, CO2 emissions and even the user's financial situation (i.e. if they are a student, pensioner or unemployed). The introduction of dynamic road user pricing could also better integrate privately-financed or funded infrastructure into the road network by collecting tolls or subsidies for investors.

The concept of dynamic road user pricing has received a mixed response from the public to date, predominately around the cost to individuals and the fear people will be priced off the road. The Government would benefit from starting a public conversation about the merits of dynamic road user pricing and how this could work in the UK.

New performance metrics focused on tackling congestion and increasing productivity

ACE recommends the Government increases the number of RIS2 performance metrics focused on reducing congestion and increasing the productivity of the SRN.

The Government should expand the number of performance metrics for Highways England in RIS2 and future strategies on reducing congestion and increasing the productivity of the network. As a starting point, Highways England should be given targets for performance metrics focused on congestion and the productivity of the network that are currently monitored but have no goals to meet. These are:

- Time lost per vehicle per mile
- Reliability of journeys
- Average speed of vehicles

These performance metrics should be designed in a way that factor in roadworks and other variables, such as weather.

The Government should also focus performance metrics on how Highways England are preventing congestion on the SRN, for example by how it manages the flow of traffic on smart motorways and how it communications with the public on delays or detours. These metrics will be somewhat difficult to develop, but they will be helpful in developing a better understanding of how Highways England are proactively managing the network, rather than responding to issues on the network, and identifying where it can improve.

Design a Major Road Network focused on unlocking productivity

ACE recommends the Government creates a flexible and agile MRN where local roads can be easily added to the network when there is a strong case they will unlock productivity in underperforming areas.

If implemented well, the development of a Major Road Network has the potential to help the Government unlock productivity in underperforming areas through renewed investment in roads.

The Government could look to design the MRN by developing a flexible and agile network where local roads can be easily added to the MRN if local authorities make a strong case that additional investment will be good for the country's economy and for unlocking productivity in that area. Local roads could then be a 'sponsored' MRN road for a set time, or permanently part of the SRN if they provide a role connecting the SRN with the broader local road network or create alternative journey options around key transport routes to help spread traffic.

Invest further in the smart motorways programme to tackle congestion

ACE recommends the Government increases its investment in the smart motorways programme, given its recent success at reducing congestion.

The smart motorways programme has been instrumental in addressing congestion on key routes such as the M42 and the M25. Highways England estimate the introduction of smart technologies has helped improve journey reliability by 22%, and make roads safer by reducing personal injury accidents by more than half, in addition to adding more miles of lane to the national network from the extra capacity of smart motorways.[22]

The smart motorways programme is a strong example of where better investments in existing infrastructure can help improve the productivity of the road network. Smart motorways should be considered the new normal, and the Government must therefore significantly increase its investment in the programme to increase the number of smart motorways across England.

Introduce a Local Infrastructure Tariff

ACE recommends the Government replaces the CIL with a better designed Local Infrastructure Tariff, in line with the CIL Review Group's recommendation.

The CIL Review Group has proposed a new Local Infrastructure Tariff to address shortcomings of the CIL. A new Local Infrastructure Tariff (LIT), applying to all developments with virtually no exceptions, would put local authorities in a better position to meet the local infrastructure needs from developments.[23] The group believes linking the LIT to the local plan process and calculating funding using a national formula based on the local market value (set at a per square metre rate) would go a long way for local authorities having a sustainable revenue stream for infrastructure costs from developments.[24]

Increase private investment in England's road network

ACE recommends the Government conducts a study on increasing private investment in the road network, investigating practices in other countries and other elements of the infrastructure sector.

The Government should consider private funding options for road projects where there is an appetite from private investors and it is in the public interest. Particularly for major projects with high upfront costs during the design and construction phase, private investments can make these projects possible and avoid a significant upfront cost on the public.

There are a number of different PFI models, proposed and used, and numerous examples of successes and failures from countries around the world. If the UK Government wants to compete with other countries in attracting private sector investment in infrastructure projects, particularly big pension funds and investment banks from around the world, it needs to be an attractive place to invest. The Government therefore needs create more confidence for private investors by ensuring it minimises risks and other uncertainties in road infrastructure projects.

To avoid some of the failures of the past from PFIs in the UK, particularly relating to other sectors, the UK Government should investigate how it can embrace private sector investment in the road network. Through this research, the UK Government should look to significantly increase private sector involvement in the funding of road infrastructure in the future.

Endnotes

1. McKinsey and Company, Keeping Britain moving: the United Kingdom's transport infrastructure needs, 2011, p. 3.
2. Office for National Statistics, Population Estimates, <www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/july2017> [viewed on 18 December 2017].
3. Office for National Statistics, Gross Domestic Product: chained volume measures: seasonally adjusted £m, <www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/abmi/pn2> [viewed on 18 December 2017]. United Nations Economic Commission for Europe
4. McKinsey and Company, Keeping Britain moving: the United Kingdom's transport infrastructure needs, 2011, p. 5.
5. ibid.
6. Department for Transport, Transport Investment Strategy, 2017, <https://www.gov.uk/government/publications/transport-investment-strategy> [viewed on 20 November 2017], p. 14.
7. ibid. p. 19.
8. RAC Foundation, The Acceptability of Road Pricing, 2011, <http://www.racfoundation.org/research/economy/road-pricing-acceptability> [viewed on 20 November 2017], p. 55 and p. 61.
9. Office for Budget Responsibility, Economic and Fiscal Outlook (November 2017), 2017, <http://budgetresponsibility.org.uk/efo/economic-fiscal-outlook-november-2017/> [viewed on 15 December 2017], p. 130.
10. BBC News, New diesel and petrol vehicles to be banned from 2040 in UK, 2017 <http://www.bbc.co.uk/news/uk-40723581> [viewed on 20 November 2017].
11. Office for Budget Responsibility, Economic and Fiscal Outlook (March 2017), 2017, <http://budgetresponsibility.org.uk/efo/economic-fiscal-outlook-march-2017/> [viewed on 15 December 2017], pp. 120-121.
12. Office for Budget Responsibility, Economic and Fiscal Outlook (November 2017), 2017, <http://budgetresponsibility.org.uk/efo/economic-fiscal-outlook-november-2017/> [viewed on 15 December 2017], p. 130.
13. CIL Review Team, A New Approach to Developer Contributions, 2017, <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/589637/CIL_REPORT_2016.pdf> [viewed on 20 November 2017], p. 6.
14. ibid. p. 11.
15. ibid.
16. Department for Transport, Transport Investment Strategy, 2017, <https://www.gov.uk/government/publications/transport-investment-strategy> [viewed on 20 November 2017], p. 47.
17. CBI/AECOM, Foundation for Growth: CBI/AECOM Infrastructure Survey (October 2017), 2017, <http://www.cbi.org.uk/news/speed-up-pace-of-infrastructure-action-say-two-thirds-of-businesses-cbi-aecom/2015-cbi-aecom-infrastructure-survey/> [viewed on 20 November 2017], p. 31.
18. Rees Jeffrey Road Fund, A Major Road Network for England, <http://www.reesjeffreys.co.uk/wp-content/uploads/2016/10/A-Major-Road-Network-for-England-David-Quarmby-and-Phil-Carey-Rees-Jeffreys-Road-Fund-October-2016.pdf> [viewed 20 November 2017], p. 1.
19. HM Treasury/Infrastructure and Projects Authority, Private Finance Initiatives and Private Finance 2 projects: 2016 summary data, <https://www.gov.uk/government/publications/private-finance-initiative-and-private-finance-2-projects-2016-summary-data> [viewed on 20 November 2017].
20. Association for Consultancy and Engineering, Funding roads: reducing inefficiency and securing investment in roads for future generations, 2013, p. 5.
21. Centre for Economic and Business Research, UK congestion to rise 63% by 2030 – faster than in France, Germany and US, <http://www.infrastructure-intelligence.com/article/oct-2014/uk-congestion-rise-63-2030-%E2%80%93-faster-france-germany-and-us> [viewed on 20 November 2017].
22. Highways England, Smart motorways programme, 2017, <http://www.highways.gov.uk/smart-motorways-programme/> [viewed on 20 November 2017].
23. CIL Review Team, A New Approach to Developer Contributions, 2017, <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/589637/CIL_REPORT_2016.pdf> [viewed on 20 November 2017], p. 27.
24. CIL Review Team, A New Approach to Developer Contributions, 2017, <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/589637/CIL_REPORT_2016.pdf> [viewed on 20 November 2017], p. 27.

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The ACE membership acts as the bridge between consultants, engineers and the wider construction sector who make an estimated contribution of £15bn to the nation's economy with the wider construction market contributing a further £90bn.

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Further information

For further details on this report, please contact:

ACE
020 7222 6557
pea@acenet.co.uk
www.acenet.co.uk

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Association for Consultancy and Engineering
Alliance House
12 Caxton Street
London
SW1H 0QL
T: 020 7222 6557
pea@acenet.co.uk
www.acenet.co.uk