

Rail Delivery Group

Response to consultation:

National Infrastructure Commission consultation on a National Infrastructure Assessment

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The Rail Delivery Group (RDG) brings together passenger train operators, freight train operators, as well as Network Rail; and together with the rail supply industry, the rail industry – a partnership of the public and private sectors - is working with a plan 'In Partnership for Britain's Prosperity' to change, improve and secure prosperity in Britain now and in the future. The RDG provides services to enable its members to succeed in transforming and delivering a successful railway to the benefit of customers, the taxpayer and the UK's economy. In addition, the RDG provides support and gives a voice to passenger and freight operators, as well as delivering important national ticketing, information and reservation services for passengers and staff.

RDG is working in partnership with the Rail Supply Group (RSG) – which was established in 2014 to strengthen the capability and competitiveness of the UK rail supply chain – to better coordinate shared objectives and further strengthen the rail industry's voice.

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Overview

Rail is fundamental to Britain's prosperity. After enormous growth over the last 20 years which has seen a doubling in passenger numbers, Britain's railway is increasingly important in connecting workers to jobs, businesses to markets, and people to their families and friends.

In October 2017, the RDG launched 'In Partnership for Britain's Prosperity'¹ – the industry's long-term plan for Britain's railway. This landmark coming together of passenger train operators, freight train operators, Network Rail and rail suppliers, means industry-wide commitment to a plan for a changing railway. More than £50 billion is being invested into the railway over the next few years and analysis by Oxera forecasts that the combination of public and private investment going into the railway - alongside the industry's plan for changing and improving - will secure almost £85 billion in extra economic benefits across the country, 100,000 job opportunities², and will enable further crucial investment in the network.

The RDG welcomes this opportunity to contribute to the National Infrastructure Commission (NIC) consultation on the National Infrastructure Assessment. We fully support the NIC's role in taking a strategic and holistic view of the UK's infrastructure needs.

The RDG's responses to the questions relevant to the rail sector are set out in turn below. However, there are some important overarching points we would like to mention here:

- The railway is an important and integral part of our economic infrastructure. It provides people with access to jobs, goods and services, it connects businesses and communities and enables wider economic development, such as construction and house building.
- Rail provides a safe, reliable, efficient and fast means of transporting passengers and freight. It has a low environmental footprint and – by taking cars, vans and trucks off the roads – helps to reduce congestion, improve air quality and cut carbon emissions.
- The industry's Rail Technical Strategy³, sets out a long term vision of a railway that harnesses technology to increase capacity, reduce carbon, cut costs and improve customer service. That strategy is accompanied by a Capability Delivery Plan (CDP)⁴, which sets out the steps and a road map needed to bring about the railway of the future.
- To build on rail's success as a transport mode, the introduction of digital technology – in-cab signalling, traffic management and driver advisory systems – will help squeeze more capacity out of existing rail infrastructure.
- The introduction of electric, connected and autonomous vehicles may well have a significant impact on how people use transport. However, we are concerned that the NIC's consultation document jumps to conclusions about the potential benefits of platooning road freight vehicles without supporting evidence and without considering the wider benefits of rail freight. In particular, we disagree with the consultation's comments that platooning truck convoys would free up rail capacity for enhanced commuter and inter-city passenger services. Our response to question 9 expands on these points in more detail.

¹ www.raildeliverygroup.com/files/Publications/2017-10_in_partnership_for_britains_prosperity.pdf

² Oxera, *Investment in rail: the economic benefits* (October 2017) p.1

³ <https://www.rssb.co.uk/Library/Future%20Railway/innovation-in-rail-rail-technical-strategy-2012.pdf>

⁴ <https://www.rssb.co.uk/rail-technical-strategy/explore-the-capability-delivery-plan>

Introduction

1. How does the UK maximise the opportunities for its infrastructure, and mitigate the risks, from Brexit?

RDG has approached its Brexit activities in three workstreams. Firstly, it has undertaken policy analysis. This has involved identifying touch points the railway has with the EU, developing an industry position and then engaging with both the UK Government (via Ministers, the Department for Transport (DfT) and the Department for Exiting the European Union (EU) and stakeholders in Brussels (including Members of the European Parliaments, the Task Force for the Preparation and Conduct of the Negotiations with the United Kingdom under Article 50 TEU, the European Council and the European Commission).

This first workstream is essentially focused on reducing the likelihood of risks materialising for Brexit.

The second workstream involves supporting members to prepare their businesses for Brexit and is therefore centred on mitigating the impacts of Brexit. This includes highlighting key risks if there were to be “no deal”, or if a ‘poor deal’ were to be made by the time the UK has to exit the EU.

Finally, RDG has worked on identifying opportunities for members associated with Brexit. Stepping beyond this, RDG is also working up a plan to support the exporting of services and expertise both in Europe’s increasingly liberalised markets and beyond (via the Department for International Trade).

Whilst activities and positions are focussed on RDG’s members, it has also sought to provide leadership on Brexit across the industry. Non-RDG members and the supply chain have common interests with regards to Brexit and working together amplifies the voice rail has when many sectors are competing to be heard.

Amongst the plethora of issues associated with Brexit, RDG has identified four main policy asks. These are not to the exclusion of other issues, but condense some key principles. The particular relation to infrastructure for each of these is highlighted below:

Smooth transport through the Channel Tunnel and at ports

The Channel Tunnel is a vital transport link between the UK and the European continent. Following withdrawal, there could be additional administrative and regulatory checks to be completed to allow travel on infrastructure on the other side of the Channel.

To enable smooth travel through the Channel Tunnel, trains need to conform to technical standards which are mutually recognised by both the UK and the EU. Train drivers also need their driving licences to be mutually recognised by both the UK and the EU. If train drivers are not licensed to travel in the EU (or vice-versa), or if technical standards are not mutually recognised, operators would have to consult with multiple authorities to travel through the Channel Tunnel into the destination country.

One in four containers that arrive in British ports makes their onward journey by rail. Additional infrastructure may be required to manage trains in depots for longer periods or to store goods. On a network that is one of the most intensively used in Europe, delays could have a significant impact on domestic freight and passenger services.

Access to skills

The railway needs skilled workers to continue operating and upgrading. We estimate that up to 20% of the industry’s workforce comes from EU countries. This is as much as 40% for some businesses. Any restriction on skilled workers will exacerbate current shortages.

Organisations in the rail industry require a high number of individuals with specific skills and expertise. This includes engineers and technicians, but also operating staff such as train drivers. As a highly complex sector with many technical facets, the industry requires the ability to continue attracting skilled workers.

Clear application of railway standards

The UK applies EU technical standards for railway rolling stock and equipment. This is beneficial to the UK as it means British operators are eligible to bid for EU franchise contracts and it means rail supply-chain products, such as rolling stock, can be exported to EU countries for use without modification.

If the UK were to stop recognising EU railway standards, there would be legal and regulatory implications for EU-based companies in the UK market; similarly there would be implications with imports from the EU. Likewise, if the UK were to not adhere or exceed EU standards, then this would likely impact British exports and the ability of British companies to bid for EU franchise contracts.

Whilst there are some potential opportunities for infrastructure managers as a result of Brexit to modify elements of our railway standards regime, this should be undertaken with a whole-industry, whole-lifetime view of costs and benefits.

A further point to mention here is the importance of the UK Government ensuring that participation and funding for research and development under the Horizon 2020 programme is supported. This programme is the biggest EU research and innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020). There is a strong rail element within the programme which will help to develop new solutions to improve the capacity and performance of the rail system whilst reducing its environmental impact.

Reciprocal market access

Foreign involvement in the British franchising market is well-documented and we should welcome the jobs and investment that international transport businesses have wanted to bring here in order to learn from and build on our successes. British businesses are also increasing their presence in mainland Europe. Companies should therefore have access to markets for the UK to be able to continue exporting its great expertise. Without an arrangement that will allow EU companies to enjoy the same access to the UK market as prior to Brexit, there could be serious complications for the UK following its withdrawal from the EU. The EU market is moreover critical for the export of goods and expertise for the rail supply chain.

2. How might an expert national infrastructure design panel best add value and support good design in UK infrastructure? What other measures could support these aims?

The RDG welcomes the proposal for a national infrastructure design panel and appreciates the value it could add, particularly through:

- the facilitation of introductions between similar/ synergic projects (either in location, strategy or technology) to enhance networking;
- the access to a range of technical experts for informal advice;
- The management of a database of good practice designs, case studies and operational data (looking at the effectiveness and impacts of new schemes); and
- the regular design meetings for projects to be presented for feedback and advice (these would only be of use if they occurred regularly so that they can easily be aligned with project programmes).

In taking a multi-modal view, the panel will need to be aware of the rail industry's specific technical, operational and safety requirements. It will also need to be flexible and scalable in its approach, noting that the funds and

timescales available to projects during the design phase will vary extensively depending on the funder and its drivers. Potential issues could arise if the panel is too prescriptive, for example:

- ‘Beauty of design’ is subjective and the budgets of projects and their ability to meet this ideal will vary.
- ‘Sensitivity to local communities and natural/urban landscapes’ strays into consents territory as opposed to design. There is already a well-established link through the consenting process between visual impacts, setting and communities.
- A single overarching ‘design vision’ would struggle to take into account the differing constraints across infrastructure sectors.

The RDG would welcome the opportunity to support the NIC in providing any assistance it may require to understand the specific characteristics of the rail sector, and in sharing the rail industry’s expertise in delivering high quality infrastructure that is attractive, sustainable and focussed on user needs. Examples here would include projects such as Birmingham New Street, Crossrail and Kings Cross Stations, as well as the forthcoming HS2 infrastructure and station designs.

3. How can the set of proposed metrics for infrastructure performance (set out in Annex A) be improved?

The performance metrics proposed by the NIC would be helpful in informing a cross-sector view of the quality of the UK’s infrastructure.

As a general observation, the performance of the rail sector is already scrutinised to a level of data and detail that far outweighs other modes e.g. right time performance, passenger satisfaction, franchise environmental reporting requirements for water, waste and energy. An equivalent approach across all modes would help to ensure that all modes are compared on an equivalent basis.

The rail industry will already be collecting data for at least some of the measures in Annex A and may be working to meet its own metrics – for example, the quality of user experience metric could potentially draw directly on the National Rail Passenger Survey produced by Transport Focus⁵. In addition, the proposed travel time reliability measure might have some relationship with industry performance data, although would be unlikely to report this directly.

Despite not being reflected explicitly in the proposed metrics, there could also be interesting synergies between the NIC’s objective to improve quality of life and the RSSB’s Common Social Value Framework. RSSB⁶ would be keen for social value to be reflected more explicitly, and would be willing to support the NIC in developing and aligning appropriate metrics to minimise the burden of reporting on the rail industry.

We would therefore welcome collaborating with the NIC more closely going forward to ensure a consistent methodology, and potentially share data with a view to avoiding any duplication of effort.

4. Cost-benefit analysis too often focuses on producing too much detail about too few alternatives. What sort of tools would best ensure the full range of options are identified to inform the selection of future projects?

Effective cost benefit analysis is vital in ensuring the right projects are selected to enhance the railway, benefiting RDG’s members and ultimately passengers, freight end users and Britain as a whole.

⁵ <https://www.transportfocus.org.uk/research-publications/research/national-passenger-survey-introduction/>

⁶ RSSB is an independent rail organisation that works with its members to drive improvements in health & wellbeing and deliver a safer, more efficient and sustainable rail system. Further information at www.rssb.co.uk

Typically, business case appraisals for rail projects are produced to support decision making around infrastructure enhancement schemes. The RDG does not undertake this activity itself, and reflecting the typical application of the techniques, Network Rail is the RDG member that is the primary user, and will therefore be providing a substantive response to this question in its submission. However, we recognise that there can be a tendency for scheme developers to focus too quickly on specific solutions rather than to assess systematically a broader range of options. As a result, we would encourage a business case appraisal methodology and process that would potentially involve an independent review and challenge process that would explicitly require evidence, and moreover demonstrate that a sufficiently broad range of options has been considered.

A key input to any business case appraisal is an unconstrained demand forecast. Although this is also an area with which the RDG is not directly involved, a diverse range of actors produce forecasts for various purposes. The NIC will be aware of the diversity of these estimates and any divergence of approach which may prompt the adoption of inconsistent investment strategies and recommendations. The industry is keen to support the NIC in providing data or guidance to inform its forecasts.

Over-prescriptive project specifications can also inhibit the supply chain's ability to innovate and offer a wider range of potential solutions. Similarly, too much emphasis on upfront capital costs can result in solutions which are more expensive to operate, maintain and renew over the longer term. Given these factors, funders and specifiers should focus on defining the outcomes they want from infrastructure investment with a focus on whole-life costs (rather than initial capital cost). This approach will encourage private sector investment, enable the supply chain to propose innovative and efficient solutions and – because of the emphasis on through-life support - facilitate higher levels of UK content.

The development of the System Operator function within Network Rail provides an opportunity for Network Rail to enhance systems and develop its capabilities to consider the rail timetable holistically and fully understand the implications of different service options. This will help ensure that, on a capacity constrained network, options for enhancements can be assessed to ensure the highest value for money and that the output of a revised pattern of services delivers the highest socio-economic value.

Building a digital society

5. What changes are needed to the regulatory framework or role of Government to ensure the UK invests for the long term in globally competitive digital infrastructure?

In the case of rail, there is an urgent need to deliver greater capacity on the existing rail network and to move towards a more resilient railway that recovers from disruption more quickly than currently. Digital technology has the potential to transform operational performance of the rail network when used in modern train control and traffic management systems. Through the industry's Digital Railway programme there is a real opportunity to develop, demonstrate and roll-out cutting edge digital train control and traffic management technologies here in the UK which will then provide a strong platform for future exports.

The RSG and the RDG in late October submitted an initial sector deal proposal to Government in response to its industrial strategy white paper. The proposal "One Railway: Digitally Connecting the Nation"⁷ sets out how the rail sector, working together, has a well-defined and ambitious strategy to ensure that Britain's rail industry is truly world leading.

Our initial sector proposal focuses on three pillars (illustrated below) with digitalisation at its heart:

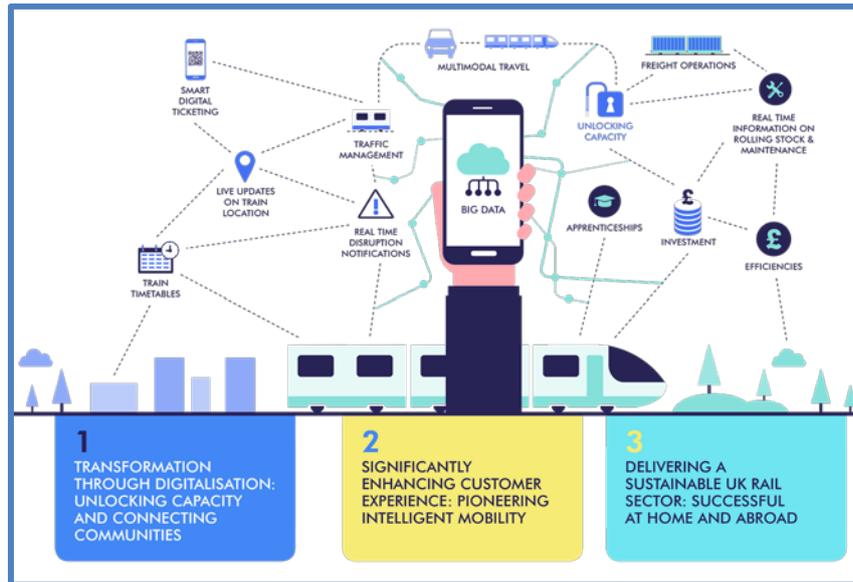
- **Accelerating the delivery of the Digital Railway** to unlock capacity and connect communities, creating One Railway which is digitally connected, increasing train capacity and reducing crowding

⁷ A video of the sector deal proposal can be found at: <https://bcove.video/2BfPgVg>

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- **Significantly enhancing the customer experience** by harnessing the power and value of data and embracing emerging technologies to deliver Intelligent Mobility
- **Delivering a sustainable UK rail sector** that is successful at home and abroad, increasing productivity, while lowering industry costs to the benefit of customers and tax payers.



We look forward to working with government – both BEIS and DfT – to develop the sector deal further.

As a general point, we believe that government and its arm's length bodies have a critical role to play in providing the right environment to encourage investment in digital infrastructure. In part this is about getting the right regulatory framework and incentive regime in place, but it is also about giving the supply chain the confidence to invest and the freedom to innovate.

6. What are the implications for digital infrastructure of increasing fixed and mobile convergence? What are the relative merits of adding more fibre incrementally over time compared to pursuing a comprehensive fibre to the premises strategy?

The RDG has no view on this topic.

7. What are the key factors including planning, coordination and funding, which would encourage the commercial deployment of ubiquitous connectivity (including, but not only, in rural areas)? How can Government, Ofcom and the industry ensure this keeps pace with an increasingly digital society?

The rail industry has been developing a 'Connected Customer' strategy to improve data connectivity along its routes, so the NIC's reference to improved 5G coverage on rail routes, and the announcement in the recent Budget of £35 million for trials of the technology are welcome. There are clear benefits:

- For **passengers**, by allowing more effective use of travel time.
- For **passenger and freight train operators**, by allowing remote condition monitoring and train positioning. Passenger operators would benefit as electronic ticketing becomes easier, and information and marketing materials can be more readily offered to customers. Freight operators would benefit from enhanced information on train arrivals and performance.
- For **infrastructure managers**, by allowing remote condition monitoring and providing connectivity which can be used by personnel working on the track.

- For **rural communities**, as the masts would be multi-purpose and could also be used to improve mobile coverage in areas where this is currently poor.

The industry strategy is not focused on a single technological solution. Although 5G is currently the favoured technology, the strategy is open to the development of alternative solutions.

In addition to ensuring the technology is adequately tested, it will also be important to ensure that a sustainable approach to funding can be agreed, and that the required infrastructure can be installed in a way which minimises disruption to the operational railway. The most likely scenario is that third parties would install multi-purpose masts at a short distance from the operational railway. The land would be leased from Network Rail Property, which is common practice for other utilities. Network Rail Telecoms would then provide the necessary trackside connections. This avoids the need for third parties to access the railway itself, and provides for a sustainable funding approach by allowing companies to rent space on the mast to communications providers. However, in order for this approach to be successful, the role of Network Rail Telecoms should be clarified. The support of Government in this regard would be welcomed.

The strategy is complementary with the industry's rollout of Wi-Fi technology. Currently this is provided on trains by operators using multiple SIM cards, which can be expensive, and necessitates in either the payment of charges by passengers or a subsidy from government. The new approach proposed by the industry would similarly see the operators accessing a form of mobile data, which they could use either to provide on-train Wi-Fi, or simply allow customers to make their own connection directly via 5G.

8. How can the risks of 'system accidents' be mitigated when deploying smart infrastructure?

The way in which the railway is operated and controlled results in a transport mode that is inherently very safe compared to other modes. As a result of an intensive and ongoing focus on improving safety, the UK now has amongst the safest railways in Europe for both customers and workforce. The introduction of digital technologies, for example in relation to signalling, traffic management and train control, is expected to improve rail safety still further.

The Digital Railway programme has made extensive efforts to minimise the risk of 'system accidents' by deploying systems which are inherently designed for safety and by deploying those systems using a Systems Engineering approach. Systems Engineering is an interdisciplinary approach and means to enable the realisation of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem.

Systems Engineering integrates all disciplines and groups into a team effort forming a structured development process that proceeds from concept to production to operation. Systems Engineering considers both the business and the technical needs of all customers with the goal of providing a quality product (Technology, Processes, Procedures etc.) that meets the user needs including the required levels of safety. In defining required safety levels, the programme has applied the Common Safety Method in conjunction with the principle of managing risk to SFARP (So Far As Reasonably Practical).

Connected, liveable city-regions

9. What strategic plans for transport, housing and the urban environment are needed? How can they be developed to reflect the specific needs of different city regions?

The RDG agrees with the NIC's views on the importance of cities in driving economic activity. Despite the evolution of road-based alternatives, rail remains the only mode that can deliver the high densities of employment and economic activity that are essential to successful urban economies. Rail also provides these

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services in a way that is substantially safer and significantly less damaging in terms of congestion, carbon and air quality than other transport modes.

Many of the construction materials used for house building and other urban developments are transported by rail from quarries and ports around the UK to sites in urban conurbations. In London over 40% of construction materials are delivered by rail, significantly reducing lorry movements on the busy city streets.

However, as the NIC recognises, providing sufficient capacity is a major challenge facing the rail industry and an ongoing programme of investment and the introduction of new technologies is required to improve the existing railway. As mentioned at the beginning of this note, the industry's Rail Technical Strategy supported by its Capability Delivery Plan is guiding the development of new approaches and technologies to unlock more capacity on the existing network, to reduce costs, cut carbon emissions and improve the customer experience.

Bringing both commuters and long-distance travellers into our urban centres are key rail strengths. However, passengers' journeys do not stop at the station. Cities have a role in helping rail to perform better, by ensuring good accessibility between the local station and key destinations within the city. The integrated transport plans at the city region level described by the NIC will be vital in supporting this, provided that the rail industry is adequately involved in their development.

The rail industry fully supports the concepts of improved interconnectivity and better transport integration to enhance the whole-journey experience. For example, the industry's 2015 'Vision for Stations' outlined nine principles for the future of good station design and policy. Principle three 'Seamless journey experience' seeks to ensure that stations are fully integrated with rail services and onward travels models⁸. Station information is equally important and RDG encourages local partners to work with the rail industry and go beyond the 'red line' of the station to plan station improvements in tandem with other modes.

Linked to the theme of improved transport integration, the RDG and the RSG submitted a sector deal proposal to the Government - the Department for Business, Energy and Industrial Strategy (BEIS) and the Department for Transport - in October 2017, setting out an ambitious strategy to ensure the UK rail sector becomes a world-leading industry. One of the core themes within the proposal discussed enhancing the customer experience by enabling easy and seamless multi-modal journeys. We look forward to working with BEIS and DfT to develop the proposal further in the coming months.

We understand that commuting is – of course - not just something which occurs in the largest cities. The vital role which rural rail services play in ensuring accessibility and supporting local economies should not be overlooked. At this point, we would like to strongly refute the NIC's previous suggestion that freight end users have an automatic preference for road transport. End users prefer the transport mode which offers the best value for money and meets their convenience and reliability requirements.

Rail freight

The importance of rail freight in delivering environmental and economic benefits to Great Britain has been recognised by successive administrations. The DfT published its Rail Freight Strategy⁹ in 2016, which set out a clear vision for the role of rail freight in limiting road congestion and reducing transport carbon emissions. The strategy moreover highlights how the rail freight industry is a UK success story, bringing benefits to the UK economy estimated at £1.2 billion per year in productivity gains for UK businesses, reduced road congestion and environmental benefits. Each tonne of freight transported by rail reduces carbon emissions by 76 per cent compared to road, and each freight train removes 43 to 76 lorries from the roads - meaning rail freight has real potential to contribute to reducing UK emissions as well as building a stronger economy and improving safety by

⁸ Including walk, cycle, bus, car, tube, transit, metro, air, ferry or ship – see page 16

https://www.raildeliverygroup.com/files/Publications/2015-10_vision_for_stations.pdf

⁹ <https://www.gov.uk/government/publications/rail-freight-transport>

reducing lorry miles. The value and importance of rail freight is also recognised by devolved administrations, as underlined by the Scottish Government's Scotland Rail Freight Strategy¹⁰.

DfT's recently published rail vision document "Connecting people: a strategic vision for rail"¹¹ describes subsequent developments, and includes a clear commitment of ongoing funding for freight improvements in the industry's next five-year funding period – generally referred to as Control Period 6 – which runs from 2019 to 2024.

The consultation document makes a number of critical statements about rail freight that we respond to below:

- **Freight trains and overall rail capacity.** The consultation comments that freight trains travelling at 70mph on the same track as passenger trains travelling at 125mph results in a significant capacity constraint. In reality, freight trains only travel on the same line as 125mph passenger trains on very few sections of the railway. Most of the freight trains operating on the West Coast, East Coast and Midland Main Lines mix with stopping or semi-fast passenger services; and which are actually slower overall than freight services as they stop at stations.
- **Rail freight travelling at night.** The consultation comments that, whilst rail freight can travel at night, this competes with maintenance work which also needs night access to the track (though the same is also true for the road network). In practice, a significant proportion of rail freight is carried at night or in the off-peak where there is spare capacity. The introduction of digital signalling and traffic management technologies, combined with more sophisticated and dynamic approaches to timetabling, will enable more passenger and freight services to run on existing lines. It is also worth noting that the road network faces similar challenges.
- **Benefits of lorry platooning.** We are concerned by the NIC's unequivocal support for lorry platooning given that the technology is essentially untested, and that other transport bodies (for example, the Road Haulage Association, AA and RAC) have expressed concern regarding the impact it will have on other motorists in terms of safety and congestion. The concept of platooning, namely enabling vehicles to run closely together in order to improve fuel efficiency and make better use of road space, is effectively what trains – both passenger and freight – already deliver. In addition, the congestion benefits of rail freight are not just associated with motorways - where lorry platooning is being considered - but on "A" roads as well. Given that more than two thirds of rail freight traffic is non-containerised, we would argue that it would be neither practical or desirable to see this traffic moved by road.

That said, we welcome the more general recognition by the NIC of the potential for digital signalling and train control to increase capacity on the network. As the NIC rightly recognises, new technologies could also drive down the cost of disruptive road and rail maintenance and renewals.

The widespread adoption of autonomous and/or electric vehicles on the road network, will rely on a significant cultural change – for example around driver behaviour - which the consultation document does not recognise. Such a cultural barrier is less of an issue in rail where users will not have to change behaviour to use electric or automated trains. This should enable a smoother and faster change to new technologies on the rail system.

Since the publication of this consultation, the Chancellor has commissioned the NIC to undertake a study on the future of freight transport. We welcome this study as an excellent opportunity to demonstrate the value of rail freight through the provision of rigorous evidence. We look forward to working closely with the NIC as this study develops.

Access to ports and airports

¹⁰ <https://www.transport.gov.scot/publication/delivering-the-goods-scotlands-rail-freight-strategy/>

¹¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/663124/rail-vision-web.pdf

Using the example of Birmingham Airport to suggest that investment in good rail access to an airport will not deliver good value for money given the minimal impact it would have on mode share, is somewhat simplistic. Firstly, the 23% rail mode share to the airport compares favourably to the similar overall public transport mode share into Birmingham city centre, set out earlier in the document. Secondly, the level of rail mode share which can be achieved will depend on factors such as the rail origins and destinations served, the quality of the local road network and the type of air service being offered. Good rail access can be a vital component in delivering a sustainable surface access strategy. Civil Aviation Authority (CAA) data¹² for 2014 suggests that rail access increases an airport's public transport mode share by at least 5%, and the rail industry continues to engage with airport operators in supporting the delivery of their aspirations.

The rail industry also engages extensively with port operators in supporting projected increases in traffic through ports. A number of initiatives are underway to improve the capability of the Felixstowe to West Midlands corridor, which allows freight traffic to travel between the port of Felixstowe and key inland terminals. Significant investment is also being made in the Southampton to West Midlands corridor, together with more targeted investment to improve the rail access to specific ports.

Effective delivery of enhancements

The NIC rightly highlights some of the challenges the rail industry has faced in recent years in delivering its programme of investment. Various initiatives have been put in place to address this some of which have been described by the RDG in its previous submissions to the NIC.

The developments in battery technology anticipated by the NIC could provide a more sustainable alternative to diesel trains in the future and, in tandem with conventional electrification, could play a key role in enhancing rail's contribution to Britain's sustainability objectives.

10. What sort of funding arrangements are needed for city transport and how far should they be focused on the areas with the greatest pressures from growth?

Traditionally, a large proportion of the funding for major infrastructure schemes has been provided by central government. The process of securing this funding can be very slow, and central government agencies will be less familiar with the transport needs of a local area and will not experience direct benefit from the proposed improvements. Additionally, the structure and geographies in which funding is provided can have secondary efficiency impacts on a variety of factors, such as flexibility of long-term planning and supply chain confidence.

In the recently published rail industry plan, 'In Partnership for Britain's Prosperity'¹³, one of the four commitments for change is to 'boost local communities through localised decision-making and investment'. As Network Rail devolves more decision-making and investment opportunities to its route management activities, we expect more local funding sources to be required to support local infrastructure projects. This could be enabled by more extensive fiscal devolution, along with more extensive use of mechanisms to secure financial contributions from the beneficiaries of enhancement schemes.

The draft National Infrastructure Assessment stresses the importance of taking into account individual economic needs and the potential of different cities and regions when considering the case for investment. The RDG would wholeheartedly support this approach, provided that national funders are fully cognisant of diverging approaches when comparing potential investments; and that the allocation of funding between cities is made on an informed basis. Determining funding on the basis of a city region's population or contribution to the national economy is likely to be overly simplistic and does not consider all the potential drivers for investment.

Securing financial contributions from the beneficiaries of enhancement schemes is a means to ensure that the industry is able to monetise the value it creates for third parties, as opposed to this value being lost. The Shaw

¹² <https://publications.parliament.uk/pa/cm201516/cmselect/cmtrans/516/516.pdf>

¹³ https://www.raildeliverygroup.com/files/Publications/2017-10_in_partnership_for_britains_prosperity.pdf

Report¹⁴ challenged Network Rail to ‘explore new ways of paying for the growth in passengers and freight on the railway’. It also identified that the private sector has a part to play in supplementing available railway funding- particularly for enhancement projects (for example from property developers, local businesses, airports, freight terminals, train operating companies as well as from other parts of the public sector, such as local authorities and Passenger Transport Executives) and publicly funded bodies (for example Local Enterprise Partnerships or Growth Deals). This could include the use of land value capture suggested in the subsequent consultation question.

While the process of securing such funding is not new to the business, the future incremental non-government funding requirement for infrastructure schemes will be higher scale and will need to focus on some key priorities. Both the Government and Network Rail have made a series of announcements about intended activities to support increased private sector investment for rail infrastructure since the publication of Hansford Review¹⁵. These include the recognition that a more fully developed pipeline of potential projects should be created, published and bids sought from the investment community. The RDG understands that the work to create the projects that would populate a pipeline, is being undertaken and discussed at a devolved Route level.

The RDG does not agree that funding for other major upgrades should be suspended whilst HS2, HS3 and Crossrail 2 are being delivered. Although these projects are vital, they will not resolve all the issues faced by the rail network. Indeed, to get the very best from HS2 and HS3 there will need to be some linked and targeted investment on the existing network. There is also a need for a broader investment pipeline to be retained and for the rail industry to continue to work with cities and other sub-national bodies to agree future investment priorities. Major schemes cannot exist in isolation and need to be considered as part of a strategy for the entire network.

The NIC suggests that the case for local authorities to take over management of stations in their area is very convincing. The industry believes that the case for transfer of the management of stations to local organisations should be considered carefully on a case-by-case basis. The commercial considerations surrounding each transfer will vary. In general, any increase in the number of bodies involved in managing aspects of the railway is not helpful.

11. How can the Section 106 and Community Infrastructure Levy regimes be improved to capture land and property value uplift efficiently and help fund infrastructure? Under what conditions are new mechanisms needed?

The Community Infrastructure Levy (CIL) was introduced with the intention of supplementing Section 106 Obligations. Section 106 Obligations are specific to individual developments, whereas CIL is intended to provide more generalised infrastructure funding for local plans.

The application of the CIL requires the charging schedules to be related to the infrastructure needs identified in relevant local plans. It is therefore clear to the application of CIL that charging authorities need to ensure that local plans properly reflect the rail infrastructure needs.

Information on the charging authority area’s infrastructure needs should be drawn from the infrastructure assessment that was undertaken as part of preparing the relevant plan (the local plan in England, local development plan in Wales, and the London Plan in London). This is because the plan identifies the scale and type of infrastructure needed to deliver the area’s local development and growth needs.¹⁶

Infrastructure to support housing

¹⁴ <https://www.gov.uk/government/publications/shaw-report-final-report-and-recommendations>

¹⁵ <https://thehansfordreview.co.uk/2017/07/new-publication-of-the-hansford-review/>

¹⁶ See paragraphs 162 and 177 of the National Planning Policy Framework in England). <https://www.gov.uk/guidance/community-infrastructure-levy>

12. What mechanisms are needed to deliver infrastructure on time to facilitate the provision of good quality new housing?

The rail industry supports the NIC's aspirations to better align housing and infrastructure planning and delivery, and its recommendations on coordination, increasing densities at accessible high demand locations and improving responsiveness using regulatory frameworks and financial incentives. A key enabler is the creation of a mechanism which makes it more straightforward for developers to contribute towards ensuring rail access to new developments.

Eliminating carbon emissions from energy and waste

13. What will the critical decision factors be for determining the future of the gas grid? What should the process for deciding its future role be and when do decisions need to be made?

The RDG has no view on this topic.

14. What should be the ambition and timeline for greater energy efficiency in buildings? What combination of funding, incentives and regulation will be most effective for delivering this ambition?

RSSB is facilitating the production of the rail industry's sustainability strategy¹⁷, which sets out its aspirations to improve the efficiency of its buildings and to implement significant opportunities for renewable energy generation on the railway estate. The rail industry has a very varied estate, with many listed buildings and a variety of ownership models. The buildings and infrastructure associated with the rail industry, such as station buildings, depots and car parks, are responsible for over 10% of the energy used in the rail industry¹⁸. The DfT implements the rail franchising process to contract operators with energy targeted reductions, and for organisations to implement energy management systems certified to ISO50001.

More generally, within the UK, businesses and industry are major users of electricity, accounting for over 50% of electricity use¹⁹. The UK has improved the energy efficiency of non-domestic buildings since 1990 with emissions 18% lower than in 2015²⁰. The Government's Clean Growth Strategy²¹ states that up to £6 billion could be saved in 2030 through investment in cost-effective energy efficiency technologies. The strategy identifies that roughly half of the savings are available through improving the efficiency of buildings and processes, including by fitting better insulation and smarter energy controls. The other half can be realised through eliminating electricity waste in business; for example, by using better lighting and energy management systems.

In the Clean Growth Strategy, the Government commits to putting in place a simpler, more ambitious and long-term policy and regulatory framework. We welcome this, as strong policy frameworks and long-term strategic approaches are needed to support certainty and give confidence to organisations to invest in and address energy efficiency. For the infrastructure sector it is particularly important that there is a focus on a whole life carbon approach that considers reducing carbon emissions for construction, operation and decommissioning stages.

¹⁷ RSSB (2016) Sustainable Development Principles <https://www.rssb.co.uk/Library/improving-industry-performance/2016-05-rail-sustainable-development-principles.pdf>

¹⁸ RSSB (2017) Guidance on Non Traction Energy Efficiency <https://www.rssb.co.uk/Library/improving-industry-performance/2017-04-Guidance-on-Non-traction-Energy-Efficiency.pdf>

¹⁹ BEIS (2017) Digest of UK Energy Statistics 2017 <https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes>

²⁰ BEIS (2017) Final UK greenhouse gas emissions national statistics: 1990-2015 <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2015>

²¹ BEIS (2017) The Clean Growth Strategy https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/651916/BEIS_The_Clean_Growth_online_12.10.17.pdf

The Government is currently consulting on Streamlined Energy and Carbon Reporting for introduction in 2019. We support this focus as reporting and disclosure provide transparency on climate change performance and can provide business with an incentive to act. We agree with the NIA response that ‘well-designed market mechanisms should ideally be open, competitive and technology neutral’.

15. How could existing mechanisms to ensure low carbon electricity is delivered at the lowest cost be improved through:

- Being technology neutral as far as possible
- Avoiding the costs of being locked in to excessively long contracts
- Treating smaller and larger generators equally
- Participants paying the costs they impose on the system
- Bringing forward the highest value smart grid solutions?

The RDG has no view on this topic.

16. What are the critical decision factors for determining the role of new nuclear plants in the UK in scenarios where electricity either does, or does not, play a major role in the decarbonisation of heat? What would be the most cost-effective way to bring forward new generation capacity? How important would it be for cost-effectiveness to have a fleet of nuclear plants?

The RDG has no view on this topic; however, we would like to highlight the role the railway can play in supporting the construction of new nuclear plants, and its critical existing role in transporting nuclear material safely and securely.

17. What are the critical decision factors for determining the role of carbon capture and storage in the UK in scenarios where electricity either does, or does not, play a major role in the decarbonisation of heat? What would be the most cost-effective way to bring it forward?

The RDG has no view on this topic.

18. How should the residual waste stream be separated and sorted amongst anaerobic digestion, energy from waste facilities and alternatives to maximise the benefits to society and minimise the environmental costs?

The RDG has no view on this topic.

19. Could the packaging regulations be reformed to sharpen the incentives on producers to reduce packaging, without placing disproportionate costs on businesses or creating significant market distortions?

The RDG has no view on this topic.

A revolution in road transport

20. What changes to the design and use of the road would be needed to maximise the opportunities from connected and autonomous vehicles on:

- motorways and 'A' roads outside of cities?
- roads in the urban environment?

How should it be established which changes are socially acceptable and how could they be brought about?

Although the anticipated improvements in the efficiency and sustainability of road travel are welcomed, it is important to recognise that any changes which increase the take-up of road travel are likely to worsen congestion. Rail is already a sustainable mode of travel and is adopting new technologies to increase capacity and operate in an even more efficient way.

We would encourage a more holistic approach to infrastructure planning and investment that identifies and exploits synergies between transport modes. As an example, in developing intelligent road (or rail) infrastructure there may be opportunities to share infrastructure – for example to support digital infrastructure/improved mobile connectivity – that would benefit both road and rail.

21. What Government policies are needed to support the take-up of electric vehicles? What is the role of Government in ensuring a rapid rollout of charging infrastructure? What is the most cost-effective way of ensuring the electricity distribution network can cope?

The railway is supporting the rollout of electric vehicle charging infrastructure through the installation of charging points in some station car parks. There may be opportunities to increase the number of charging points significantly through greater collaboration between the Government, car manufacturers, Network Rail and train operators. RDG would welcome the opportunity to facilitate a discussion on this topic.

We continue to support further targeted electrification of the railway as a means of improving performance, reducing emissions of carbon and air pollutants, increasing capacity and cutting cost. Although there have been cost and delivery challenges with some recent rail electrification schemes, in general electrification can be delivered on rail far more easily than on the road network. Electrified trains have been running for over 100 years and trains with overhead wire systems since the 1950s so the technology is proven with robust supply chains in place.

While electric technology is advancing for cars, there are still significant technical challenges, in particular around the cost, size and weight of suitable battery packs, before electric HGVs will become feasible. Therefore different solutions are required to reduce carbon and emissions from the movement of freight.

22. How can the Government best replace fuel duty? How can any new system be designed in a way that is fair?

The current fuel duty system provides a means for road users to pay for the upkeep of the network, to capture the external costs of road transport and to encourage more sustainable travel. Even though improvements in technology could reduce the need to internalise the environmental impacts of road travel, the need to finance the upkeep of the network and to capture the external costs of congestion would remain. However, whilst fuel duty from all users currently raises more than the total roads budget, it is important to consider the position for passenger and freight vehicles separately.

Research undertaken on behalf of Campaign for Better Transport 'Heavy Goods Vehicles – do they pay for the damage they cause?' was carried out by the Metropolitan Transport Research Unit (MTRU) for the Campaign for Better Transport²². This research shows that HGVs are paying less than a third of the costs they impose on society in terms of crashes, congestion, road damage and pollution as HGVs receive a subsidy of around £6.5 billion per annum.

The research focuses on what HGV costs are and to what extent taxes and charges cover these costs. It evaluates the different, but widely accepted Government methods, marginal external cost and fully allocated cost models, and assesses the scale of undercharging by using different assumptions with the following conclusions:

- The cost of road collisions involving HGVs is undervalued given that HGVs are five times more likely than cars to be involved in fatal accidents on local roads.
- Congestion is not properly measured as the analysis uses undervalued figures to calculate the cost of delay imposed on others.
- The impact on air pollution is not counted.
- The largest HGVs, including all articulated vehicles and the heaviest rigids, impose high costs which are not recovered by a very considerable margin.

Over the next few decades it will be necessary to replace the existing fuel duty with road pricing. As indicated in Figure 5.1, fuel duty is already dropping as a percentage of GDP and, as it has been frozen in real terms since 2011, this trend is likely to continue. We note that the DfT is currently consulting on options to introduce distance-based charges for lorries; we agree that it is sensible to start with road pricing in the freight sector. Introducing a distance-based road charge for lorries will put road freight on a more similar footing to rail freight (which already pays a distance-based charge), and it will moreover support a tool that will enable future policy decisions on the appropriate charge for HGVs to pay to support policies on modal shift to rail - creating more efficient use of the road network in the process.

Reducing the risks of drought and flooding

23. What should be done to reduce the demand for water and how quickly can this have effect?

The NIC highlights the likelihood that a growing population will increase the pressure on the country's supply of drinking water. The rail industry is keen to play its role in reducing the demand for water. The rail Sustainable Development Principles²³ set out aspirations to reduce the use of water and increasingly use recycled water. The DfT implements the rail franchising process to contract operators with the obligation to install water meters on their estate, as well develop targeted water reductions based on a water usage baseline the metered data supplies. The rail industry has seen this approach help raise awareness and focus within rail organisations on improving water management. It has led to actions, such as identifying leaks, which ultimately have reduced consumption.

24. What are the key factors that should be considered in taking decisions on new water supply infrastructure?

The RDG has no view on this topic.

²² Both this year's figures and the original report can be downloaded from the Campaign for Better Transport website: www.bettertransport.org.uk

²³ RSSB (2016) Sustainable Development Principles <https://www.rssb.co.uk/Library/improving-industry-performance/2016-05-rail-sustainable-development-principles.pdf>

25. How can long-term plans for drainage and sewerage be put in place and what other priorities should be considered?

The RDG has no view on this topic.

26. What investment is needed to manage flood risk effectively over the next 10 to 30 years?

Many important rail routes were constructed during the Victorian era on flood plains, and in some locations, the railway itself can act as a flood barrier. As the NIC identifies, rainfall and river flows are likely to become more extreme due to climate change, which poses a significant increase in the risk of surface water, fluvial (river), coastal and groundwater flooding. Flooding in 2013 alone cost Network Rail around £12m in compensation and a further £15m in damage repairs²⁴.

RSSB considered flooding as part of the research project Tomorrow's Railway and Climate Change Adaptation²⁵. This work identified some of the main rail vulnerabilities due to an increase in precipitation and flooding are; earthwork failures, scour of bridges, risk to signalling systems and electronic equipment and track circuit failures. The research had a number of conclusions and recommendations relating to flooding and railway infrastructure and the further investment and research required. For example, there is a need to increase understanding of how different amounts of rainfall and levels of flooding impact earthworks, along with better warning systems, which could lead to improved targeted mitigations²⁶.

The rail sector needs to consider different engineering solutions. For example, in some locations there may be a case for slab track (typically rail tracks fixed to a solid concrete base instead of fixed to sleepers resting on ballast). This solution has better flooding resilience as there is no erosion/washout of ballast, and drainage channels can be incorporated into the design. Pile construction may decrease the vulnerability of buildings containing important equipment (e.g. signalling).

The rail sector should also consider relocation/re-siting for particularly vulnerable existing assets. For example, in locations vulnerable to flooding in the Netherlands, track has been elevated and railways have been routed away from rivers. There are also system interdependencies and effects of flooding on the former (e.g. flood at electricity substation resulting in loss of traction power, even if the railway is not affected directly).

Therefore, ongoing significant investment in specific flood resilience infrastructure and systems is required to safeguard critical rail routes which are most at risk, to ensure that services can be maintained and that areas of the country do not find themselves isolated from the rest of the network.; for instance, through the installation or deployment of flood protection measures such as flood protection walls, inflatable dams or flood gates. There also needs to be more investment into the management of flooding as it requires careful planning and the development of appropriate strategies (in the rail sector, for example, this could include emergency timetables, coordination with train operators, etc.).

Financing and funding infrastructure in efficient ways

27. What would be the most effective institutional means to fulfil the different functions currently undertaken by the European Investment Bank if the UK loses access? Is a new institution needed? Or could an expansion of existing programmes achieve the same objectives?

²⁴ RSSB (2016) Tomorrow's Railway and Climate Change Adaptation (T1009) (Executive Report) https://www.sparkrail.org/_layouts/15/Rssb.Spark/Attachments.ashx?Id=75NEMTS3ZVHP-8-12171

²⁵ RSSB (2017) Tomorrow's Railway and Climate Change Adaptation <https://www.rssb.co.uk/research-development-and-innovation/research-and-development/research-project-catalogue/t1009>

²⁶ RSSB (2016) Tomorrow's Railway and Climate Change Adaptation (T1009) (Executive Report) https://www.sparkrail.org/_layouts/15/Rssb.Spark/Attachments.ashx?Id=75NEMTS3ZVHP-8-12171

The EU's transport infrastructure is based around the Trans-European Networks for Transport (TEN-T). TEN-T policy aims to overcome infrastructure barriers to the smooth operating of the internal market. It does this by requiring minimum standards to be in place on core routes. It is accompanied by funding via the Connecting Europe Facility (CEF).

In the last five-year funding period, Network Rail accessed approximately £100m of EU grants via CEF for major capital projects, but has not used the European Investment Bank or any of the financial instruments it has available.

28. How could a comprehensive analysis of the costs and benefits of private and public financing models for publicly funded infrastructure be undertaken? Where might there be new opportunities for privately financed models to improve delivery?

Dealing with the second element of the question first – in February 2017, RDG commissioned and published a report entitled 'Project Finance: Bringing more Private Delivery and/or Investment into the Rail Industry.'²⁷ The report was produced with Cambridge Economics and sought views from rail industry participants, banks, pension funds and members from the investment community.

The project was structured into two phases, and considered the following issues:

1. The obstacles faced by investors interested in rail and the opportunity for private delivery and/or finance to play a greater role; and
2. How the obstacles might be best addressed to take advantage of the opportunities identified.

In phase 1, the project identified a number of obstacles and opportunities to attract private sector delivery and/or investment. Then in phase 2, the project undertook wider investor engagement, and considered the following:

- **Governance/regulation** – what the challenge being set for the rail industry is, and how the institutional architecture – of the industry and through funders and regulation – impacts the challenge.
- **Investor views** – perspectives on appetite for investment in rail and what would make the sector more attractive to invest in. The project asked investors about approaches applied in other sectors and other countries that rail might learn from.
- **Rail industry analysis** – how current processes might be changed to respond to the challenges identified in Phase 1.

A key finding was that there is currently a substantial appetite for railway infrastructure deals. As the NIC identifies, availability of finance is not an issue – the lack of a pipeline of suitable projects is a more substantial barrier to greater investment, as is the current institutional capability in the rail industry to deliver these projects. Investors had clear ideas of what they think the industry would need to do to attract private finance to rail infrastructure projects:

- **Provide a pipeline and a programme approach** – for financial institutions to invest in skills and resources to provide finance and risk capital to rail infrastructure they need some assurance that there will be steady level of regular transactions. Creating investment teams will be expensive as the legal structures underpinning GB rail are complex, and forming credit judgements require complex structural analysis and legal support. The Dutch Road PPPs and Ofgem for electricity transmission were mentioned by several as approaches that have been successful in attracting private finance to infrastructure projects. Some called for a pilot programme of a reasonable but achievable number (e.g. 5-6) of similarly structured projects to build confidence with investors.

²⁷ <https://www.raildeliverygroup.com/about-us/publications.html?task=file.download&id=469772167>

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- **Rethink Value-for-Money analysis for private finance** – projects using private finance need to demonstrate Value-for-Money within Network Rail's governance processes. The assessment needs to take a whole-system whole-life approach. Such an approach will account for improved maintenance and operation, as well as benefits from delivery on time and budget. A simple cost of finance vs efficiency proposition excludes the wider benefits provided by the private sector in terms of risk assessment, project scoping and price certainty.
- **Exert leadership in industry** – government and the public sector must demonstrate commitment and provide a strategic overview of what the industry is seeking to achieve. Government should demonstrate clear leadership and strategy around its objectives for bringing private sector involvement into rail infrastructure projects. We noted that in both Norway and Netherlands, specialist Government infrastructure units existed to develop potential transactions, required legal documentation and standard tendering procedures. The industry should create strong sponsorship for any programme, including appropriate parties developing the capacity to lead these transactions effectively.
- **Identification of revenue stream** – all lending transactions and investments require repayment of capital, interest and margin. The current financial relationship between infrastructure providers and operators provides for a regulated access charge to recover asset investment, renewals and maintenance. In order to support privately financed infrastructure, then incremental sources of revenue have to be created. This could be through designated incremental access charges or some form of land value hypothecation to repay private sector finance (as opposed to CIL and Section 106 funding).
- **Creating a structured proposition with a clear allocation of risks** – an important feature of attracting new investment, further supported by more detailed work in the Hansford Review. Most investors will take on risk, so long as they can control the risk and can price for it. Where risks are not clearly defined or allocated then pricing for uncertainty becomes more complex and expensive. In most infrastructure projects such inefficiencies in the allocation of risks should not occur, but that requires careful & skilful analysis of risks, and recognition by the Government of what risks the private sector can and cannot effectively manage. Only well-structured investment proposals should be presented to investors and pre-tested with the market early on to gauge appetite. Ofgem was mentioned as a good example of a regulator using active market engagement and consultation to prepare bidders and test procurement proposals.

Turning to the first element of the question, clearly an analysis of the costs and benefits of private and public financing models for publicly funded infrastructure is undertaken as part of compliance with HM Treasury Green Book rules and published public sector guidance notes (including how to incorporate unvalued costs & benefits). How comprehensive that analysis is, is probably largely a function of who undertakes it, and the resources available to research wider costs and benefits.

PAPER ENDS