

February 2022

Second National Infrastructure Assessment: Baseline Report Call for Evidence

1. INTRODUCTION

1.1 This submission constitutes the response from the Railway Industry Association (RIA) to the call for evidence in the Second National Infrastructure Assessment Baseline Report, published by the National Infrastructure Commission.

2. BACKGROUND TO RIA

2.1 RIA is the trade association for UK-based suppliers to the UK and world-wide railways. It has over 300 companies in membership covering all aspects of rolling stock and infrastructure supply and covering a diverse range of products and services. As well as most of the Tier 1 contractors and large, multi-national companies, over 60% of RIA's membership base is comprised of SMEs.

2.2 A [2021 Oxford Economics report](#) shows that the UK rail sector was growing before the Coronavirus pandemic, with the rail industry supporting £43 billion Gross Value Added in economic growth compared to £36.5 billion in 2016, 710,000 jobs compared to 600,000 in 2016, and £14 billion in tax revenue compared to £11 billion in 2016. The report also shows that investment in rail is clearly worth it – for every £1 spent in rail, £2.50 of income is generated in the wider economy.

3. SUMMARY OF KEY PRIORITIES AND RECOMMENDATIONS:

RIA welcomes the long-term focus enabled by the National Infrastructure Commission Infrastructure Assessments. Cost effective infrastructure investment, including rail, require long-term thinking and clear investment pipelines – avoiding a stop-start approach to investment.

RIA priorities for the second Infrastructure Assessment are that the Commission should:

- Retain a long-term approach including timelines for full NPR and HS2 Eastern Leg investment.
- Recognise the full value of rail as a national transport asset with the potential to address a number of the Commission's challenges including zero carbon, digital transformation and levelling up.
- Include rail fares and other incentives in wider consideration of demand management in order to maximise the benefits and attract more passengers to use the railways.
- Encourage rail clients and the Infrastructure Bank to consider new models to support private funding and finance in rail.

Recommendation 1: That the National Infrastructure Commission should recognise the full value and potential of the rail sector and retain a long-term approach including timelines for full NPR and HS2 Eastern Leg investment.

Recommendation 2: Provide a steady, transparent and outcome-focussed procurement pipeline in order to support competition, efficiency, innovation and delivery. Regional funding has the potential to unlock significant local benefits but funding structures need to avoid being overcomplicated or bureaucratic as this adds cost and delay. The private sector is open to exploring new funding and finance models.

Recommendation 3: Support the private sector in contributing to environmental net gain by integrating carefully designed targets for procurement. Engage the supply chain early in the procurement process to unlock innovation potential, ensure effective delivery and minimise costs and delay in working towards the targets.

Recommendation 4: Display strong leadership on the development of long-term strategic planning and policy. Governance models that feature strategic partnerships with the supply chain and avoid stop start investment can enable efficient progress towards the challenges.

Recommendation 5: Utilise and support the digital capabilities in the rail industry to make progress on the challenges in the transport sector and beyond.

Recommendation 6: Recognise rail as an efficient use of power, and the potential for rail to be central to national and global hydrogen and battery strategies.

Recommendation 7: Support a focus on asset sustainability in rail by sourcing expertise and innovation from the supply chain. Ensure alignment by providing clarity and long-term planning.

Recommendation 8: Develop an outcome led innovation strategy for rail – this has the potential to unlock further innovation and attract private investment.

Recommendation 9: Recognise the role of rail in creating capacity for other transport modes and in enabling congestion relief. Support a rolling programme of electrification and engagement with the supply chain on cost effective delivery for passengers and freight. Include rail fares in wider consideration of demand management in order to maximise the benefits and ensure effective use of the rail network.

Recommendation 10: Support devolution and multi-year funding settlements for devolved Government transport bodies.

4. QUESTION 1: Do the nine challenges identified by the Commission cover the most pressing issues that economic infrastructure will face over the next 30 years? If not, what other challenges should the Commission consider?

4.1. RIA agrees that the 3 strategic themes and nine challenges identified by the Commission are overall right. Rail has the potential to address, and/or an interest in:

- Challenge 1: The digital transformation of infrastructure
- Challenge 4: Networks for hydrogen and carbon capture and storage

- Challenge 5: Asset management and resilience
- Challenge 7: Waste and the circular economy
- Challenge 8: Urban mobility and congestion
- Challenge 9: Interurban transport across modes

RIA particularly welcomes the ambition to address asset management and resilience in Challenge 5 and the commitment to a long-term perspective and a strategic multimodal transport plan in Challenge 9.

- 4.2. Whilst the challenges are overall sound, RIA would urge the Commission to recognise that a long-term commitment to rail is needed to drive progress on many of the challenges. Here, the Commission has a central role to play and can ensure that Government considers the strategic place for rail within the transport and zero carbon (hydrogen and battery) energy systems. The more certainty in Government plans for rail and infrastructure, the better and more efficiently the supply chain can deliver.
- 4.3. RIA welcomes the significant investments announced in the Integrated Rail Plan (IRP), which was published in November 2021 after a long period of uncertainty. Several announcements including commitments to new high-speed lines, a programme for rail construction and upgrades, electrification, and local transportation which will bring great benefits and serve to work towards the nine challenges set out by the Commission.
- 4.4. However, the IRP has shown a piecemeal approach to national strategic railway infrastructure investment, given the removal of HS2's Eastern Leg and the scaling back of Northern Powerhouse Rail (NPR). There needs to be a clearer long-term vision for the future of the high-speed network for the UK. To meet the nine challenges the Commission has identified, it must work to establish stronger commitments to strategic investments and to rail as the backbone of the zero-carbon economy.

Recommendation 1: That the National Infrastructure Commission should recognise the full value and potential of the rail sector and retain a long-term approach including timelines for full NPR and HS2 Eastern Leg investment.

5. *QUESTION 2: What changes to funding policy help address the Commission's nine challenges and what evidence is there to support this?*

- 5.1 The rail supply chain stands ready to provide the strong and efficient delivery needed to meet relevant challenges. However, improvements to funding policy are key to enabling this. Renewals of the rail network are funded in five yearly cycles, or Control Periods (CPs). Work is usually concentrated into the middle years of the CP creating a 'boom and bust' profile of work for suppliers. This inconsistency in work means the industry prepares for a significant ramp up in work but when this work drops off, unnecessary costs are incurred – at worst suppliers close facilities and disband work teams, losing jobs. Uncertainty means multi-national companies move to other non-rail sectors or overseas, and SMEs struggle to find work or go out of business. Although this issue is now more widely recognised, it remains vital that renewals are smoothed out over CPs and that major rail projects are delivered in a consistent way.
- 5.2. Similarly, work pipeline visibility will be key in enabling the supply chain to support the work to address the Challenges. Publishing transparent investment and procurement pipelines and with targeted outcome-focussed procurement models supports competition, efficiency, innovation and delivery.

- 5.3. RIA supports regional infrastructure funding as a way to enable economic growth and levelling-up. We agree with the Commission's support for devolved five-year funding settlements for regional transport bodies and devolved Governments as a means of ensuring integrated transport and infrastructure plans. However regional funding needs to be carefully designed – if there are too many funding pots and an overly complicated funding structure in regions, there is a risk that system-level strategic solutions and economies of scale are overlooked. Therefore it is important to get the balance between central and devolved planning and funding right.
- 5.4. Delegation of funding authority to Great British Railways (GBR) would enable a more efficient spend and minimise bureaucracy – especially if GBR moves to a Total Expenditure approach for accounts.
- 5.5. RIA welcomes the new Infrastructure Bank. A significant contribution to financial sustainability would be enhancing the rail sector's ability to attract private investment and financing. Pipeline visibility and long-term strategic planning creates certainty and will therefore allow rail to attract private investment. The Williams Shapps Plan for Rail commits GBR to unleashing the benefits of the private sector including alignment of contracts and investments with asset life cycles.
- 5.6. [Project Reach](#) is name-checked in the Plan and demonstrates Government appetite for new models for private funding and financing. There may be opportunities for a similar approach to other key aspects of rail such as digital signalling, electrification and electric vehicle charging (energy as an asset). There is significant expertise in the supply chain based on UK projects (HS1, Tubelines etc) and global PPP projects and there are opportunities to learn lessons from these.

Recommendation 2: Provide a steady, transparent and outcome-focussed procurement pipeline in order to support competition, efficiency, innovation and delivery. Regional funding has the potential to unlock significant local benefits but funding structures need to avoid being overcomplicated or bureaucratic as this adds cost and delay. The private sector is open to exploring new funding and finance models.

6. ***QUESTION 3: How can better design, in line with the design principles (climate, people, place, value) for national infrastructure, help solve any of the Commission's nine challenges for the next Assessment and what evidence is there to support this?***
 - 6.1. RIA agrees that the Commission should further its work an alignment with the design principles – Climate; People; Places; and Value. Rail infrastructure is clearly aligned with these principles, and working towards relevant challenges, in alignment with the design principles, can unlock the full social value of rail investments, including what RIA calls the '4 Gs':
 - **Growth:** Rail projects generate significant investment – for every £1 spent on the rail network, £2.50 is generated in the wider economy.
 - **Geography:** Rail projects support investment in all regions and nations of the UK, including areas of social deprivation where investment and regeneration is urgently needed – supporting local jobs, productivity and delivering on the Government's 'levelling up' agenda.
 - **Green:** Rail is a green mode of transport and investing in rail will ensure the economic recovery is also an environmentally beneficial one. Rail is the only mode with a ready solution to zero carbon long-distance heavy freight.
 - **Global:** UK rail exports £600 million in goods and services each year and could deliver even more with further support.

7. QUESTION 4: What interactions exist between addressing the Commission's nine challenges for the next Assessment and the government's target to halt biodiversity loss by 2030 and implement biodiversity net gain?

- 7.1. The private sector has strong capabilities to support environment and biodiversity targets. RIA therefore welcomes initiatives such as Cabinet Office requirements that procurements support zero carbon goals as well as commitments to Science Based Targets and net biodiversity gain. Both of these are areas which Network Rail and HS2 are increasingly mandating in tenders. These requirements complement the increasing focus on environmental investments by financial institutions and create the certainty needed for the supply chain to invest in appropriate skills and technologies.
- 7.2. However, the scale of change required should not be underestimated. Targets and policies need to be designed carefully and care needs to be taken to avoid any unintended consequences and unnecessary costs related to the bureaucracy and administration of targets. This is particularly important for SMEs. Rail should be fully integrated in national zero carbon transport and energy plans including hydrogen and battery strategies and integrated transport plans in order to unlock the full potential of rail.

Recommendation 3: Support the private sector in contributing to environmental net gain by integrating carefully designed targets for procurement. Engage the supply chain early in the procurement process to unlock innovation potential, ensure effective delivery and minimise costs and delay in working towards the targets.

8. QUESTION 5: What are the main opportunities in terms of governance, policy, regulation and market mechanisms that may help solve any of the Commission's nine challenges for the Next Assessment? What are the main barriers?

- 8.1. RIA welcomes the fact that Government is increasingly recognising the importance of pipeline visibility and early supplier engagement. This enables rail to play a central part in solving Challenges 8 and 9. For instance, the Integrated Rail Plan announced that it will build on the approach of the Rail Network Enhancement Pipeline (RNEP), which provides a rolling programme of investment.
- 8.2. However, the governance of these pipelines must ensure there is clarity and long-term strategic thinking. Strong leadership and commitment to agreed outcomes is vital as it brings certainty, which in turn, increases efficiency and productivity. At the time of writing, the RNEP has still not been updated for over 2 years. Additionally, announcements in the IRP represented a step back in plans for major rail projects. Government decisions should not create 'bottle necks' in the industry that add costs and create stop-start patterns of investment. When it comes to the supply chain, stop-start investment in rail leads to inefficient investment by the private sector and at worse it can mean facilities shutting, skilled jobs being lost, multi-national companies moving overseas and SMEs struggling to find work.
- 8.3. RIA welcomes Cabinet Office procurement policies such as the Construction and Sourcing Playbooks and the Procurement Green Paper response which recognise the need for a strategic relationship with suppliers and long-term frameworks for infrastructure delivery aligned with asset life cycles.
- 8.4. RIA's ['Learning from Major Rail Projects'](#) highlights the capabilities of the supply chain to deliver major projects on the railways. Learning from such success stories will be key to addressing the challenges. The key messages from the report are:

- Collaboration and Leadership: Create strategic partnerships with the contractors and clients that are based on shared goals.
- Visibility and long-term investment: Once committed do not look back, share pipelines and plan long-term investment to drive competition, grow supply chain capability and efficiency and give confidence to the private sector to invest in skills, assets and innovation.
- Innovation and SMEs: Support innovation at the earliest stages of a project, take full advantage of supply chain capability including international, SME and cross sectoral ideas and expertise. Harness supply chain skills on system thinking and whole life value.
- Procurement: Engage suppliers early. Publishing transparent procurement pipelines and targeted outcome-focussed procurement models, support competition, efficiency, innovation and delivery. Effective procurement enables the development of intellectual property and unlocks collaborative funding and financing models.
- Economic, Environmental and Social Value: Recognise the full economic, environmental and social value that rail brings to the UK.

8.5. Strategic partnerships between the supply chain and clients can help lower costs, manage change effectively and speed up the delivery of infrastructure schemes in working towards the nine challenges. RIA welcomes Early Contractor Involvement initiatives – this will support whole system thinking and innovation by integrating contractor and designer teams, appointed during the planning stage of the project. Successful examples of strategic partnerships and contractor-client alliances include the London Bridge Area Partnership and the South, Central and Scotland Rail Systems Alliances for track renewal.

Recommendation 4: Display strong leadership on the development of long-term strategic planning and policy. Governance models that feature strategic partnerships with the supply chain and avoid stop start investment can enable efficient progress towards the challenges.

9. ***QUESTION 6: In which of the Commission’s sectors (outside of digital) can digital services and technologies enabled by fixed and wireless communications networks deliver the biggest benefits and how much would this cost?***

9.1. RIA notes that rail projects are systems projects, spanning infrastructure, trains and change management. Therefore, the rail supply chain has significant capabilities in digital services including digital signalling, building information modelling, passenger and remote monitoring data that can be enabled to deliver greater benefits to transport sector. Such technologies can also contribute to asset sustainability through efficient remote monitoring and grow UK capability and innovation, including export potential.

9.2. This is demonstrated in RIA’s 2021 [‘Learning from Major Rail Projects’](#) report. For instance:

- Transport for London’s Northern Line Extension, delivered by the FLO Joint Venture comprising of Laing O’Rourke and Ferrovial Construction, was an excellent example of using digital engineering to reach high standards of safety performance and quality assurance.
- The Central Rail Systems Alliance is comprised of Network Rail, Balfour Beatty, TSO, and Atkins, who are working together over a ten-year programme to deliver track renewals in the North West & Central as well as Eastern Regions of England. This alliance is investing in a digital strategy capable of delivering some of the UK’s most high-profile projects.
- Atkins has contributed to the electrification of the Midland Main Line by developing POLECAT, a digital tool which creates 3D models of rail electrification design, logging all the data in a SQL database, so

that it is retrievable and useable. By providing a higher level of detail than normally available at the options development stage, POLECAT reduces risk occurring at later stages of the project. This digital innovation has sped up design production times, almost halving times to produce a typical cross section.

9.3. In addition, RIA welcomes enterprise procurement models such as those being considered by Network Rail and used by HS2 to deliver high performance infrastructure. As specified above RIA also supports the opportunities presented by Project Reach and the BAI Communications and Transport for London's 20-year concession to deliver mobile connectivity services for rail users and communities.

10. *Question 7: What barriers exist that are preventing the widescale adoption and application of these new digital services and technologies to deliver better infrastructure services? And how might they be addressed?*

10.1. As set out above, the rail supply chain already includes innovations for digital infrastructure. To fully unlock these skills and innovations, whole system thinking is required. This can be achieved by Early Contractor Involvement and ensuring procurement is aligned with whole system thinking.

10.2. RIA therefore welcomes the approaches taken by Project 13 (enterprise models) and the Construction Playbook, where the supply chain is involved in early project development and procurement is outcome focused. This also serves to unlock innovation in digital services which may be transformational for the rail sector as well as for other key infrastructure sectors.

10.3. Digital safety and security, including strategies for maintaining the digital infrastructure, should be built into the whole system approach to maintain health and safety. A digitally connected transport infrastructure therefore also requires continuous improvement on cyber security – both within the network as well as the interfaces with other digital infrastructures.

Recommendation 5: Utilise and support the digital capabilities in the rail industry to make progress on the challenges in the transport sector and beyond.

11. *Question 8: What are the greatest risks to security of supply in a decarbonised power system that meets government ambition for 2035 and what solutions exist to mitigate these risks?*

11.1. Strategic whole system thinking is crucial to ensuring a secure supply of decarbonised power. Rail electrification enables efficient use of a limited energy supply – providing benefits to passengers, freight, and the environment. Additionally, the rail sector is highly innovative in developing hydrogen and battery as decarbonised power alternatives and can attract private investment to this end. To realise these benefits in terms of power efficiency and security, rail needs to be factored into national thinking on hydrogen and battery strategies. This will also enable the certainty and forward thinking needed to unlock investment and innovation.

Recommendation 6: Recognise rail as an efficient use of power, and the potential for rail to be central to national and global hydrogen and battery strategies.

12. **Question 9: What evidence do you have on the barriers to converting the existing gas grid to hydrogen, installing heat pumps in different types of properties, or rolling out low carbon heat networks? What are the potential solutions to these barriers? N/A**
13. **Question 10: What evidence do you have of the barriers and potential solutions to deploying energy efficiency in the English building stock? N/A**
14. **Question 11: What barriers exist to the long term growth of the hydrogen sector beyond 2030 and how can they be overcome? Are any parts of the value chain (production, storage, transportation) more challenging than others and if so why?**

14.1. As referenced above, the rail sector has much to offer in terms of [growth potential for the hydrogen sector](#). To further the growth of the hydrogen sector it is key that the Commission recognises that a clear strategy on hydrogen would attract more private investment and financing, which will in turn not only serve to decarbonise the transport sector, but also to spur further innovation and create export opportunities for UK suppliers.

14.2. As the Commission recognises, the Government hydrogen strategy is not yet a plan. As plans are developed, they should consider the relative priority of hydrogen for rail and how best to integrated rail demand in the hydrogen infrastructure network. The rail sector has significant local and international expertise and can support the development and delivery of the UK hydrogen strategy.

Recommendation 6: Support a strategic delivery plan for hydrogen and recognise the rail sector's capabilities in developing hydrogen technologies that will benefit the environment, present significant opportunities for private investment, and strengthen UK export potential.

15. **Question 12: What are the main barriers to delivering the carbon capture and storage networks required to support the transition to a net zero economy? What are the solutions to overcoming these barriers? N/A**
16. **Question 13: In what ways will current asset management practice need to improve to support better infrastructure resilience?**

16.1. RIA welcomes an increased focus on asset sustainability and that the Office of Rail and Road have selected asset sustainability as one of their key themes for the 2023 Periodic Review.

16.2. RIA would also like to note that the rail supply chain represents a wealth of expertise and innovation that can aid in effective asset management practices. For instance, rail suppliers have strong digital capabilities (see section 10) and have developed advanced technologies for remote monitoring. One example developed is the Atkins Signalling Method, the most radical approach to signalling in the UK in the past eight years and which integrates remote condition monitoring and other associated products on one platform. Another example is Automated Intelligent Video Review, developed by SME One Big Circle, which was built to make video data rapidly accessible securely online, thus enabling remote condition monitoring of assets and environment. Additionally, industry renewals and refurbishment programs have demonstrated a commitment to asset sustainability.

Recommendation 7: Support a focus on asset sustainability in rail by sourcing expertise and innovation from the supply chain. Ensure alignment by providing clarity and long-term planning.

17. Question 14: What are the barriers to and solutions for expanding recycling capacity, both now and in the future to deliver environmental and net zero targets?

17.1. In order to enable suppliers to expand recycling capacities, the industry needs to be given certainty around what is expected. For instance, RIA welcomes the fact that Cabinet Office and Network Rail are moving towards including environmental and carbon targets in their procurement. Since expanding recycling capacities might add costs, it is important that this is built into the early stages of procurement to avoid uncertainty around costs.

17.2. Another key step towards expanding recycling capacity is to provide appropriate support for innovation. Innovation has the potential to deliver both long-term environmental benefits and cost efficiencies. The rail supply sector has already provided a multitude of innovative solutions to expand recycling capacity in rail projects in order to meet environmental targets. For instance, for works at Bristol East, Colas Rail installed Getzner's recyclable under sleeper pads made from resin-bonded-rubber and sourced from the circular economy. Another example is Laing O'Rourke's delivery of four bridges as part of the Enabling Works (North) programme for HS2. Due to a reduction in embodied carbon in concrete mixes and the use of recycled steel in the bridges, approximately 100 tonnes of CO2 was saved.

17.3. Innovative recycling in the rail sector can also have positive benefits to other sectors from which materials can be sourced or to which technologies and innovations can spill over and be shared.

Recommendation 8: Develop an outcome led innovation strategy for rail – this has the potential to unlock further innovation and attract private investment.

18. Question 15: What is the likely environmental impact of waste streams from construction across economic infrastructure sectors, over the next 30 years, and what are the appropriate measures for addressing it? N/A

19. Question 16: What evidence is there of the effectiveness in reducing congestion of different approaches to demand management used in cities around the world, including, but not limited to, congestion charging, and what are the different approaches used to build public consensus for such measures?

19.1. The Transport Decarbonisation Plan notes that whilst the cost of motoring has fallen in the past 20 years by 15 percent, rail fares went up by 20 percent and commits to make trains better value and more competitively priced. The Commission's work on demand pricing should ensure a fair price for rail – recognising the full economic and environmental value to society. Other countries are experimenting with lower rail fares. For example Austria has launched a new [climate ticket for \\$3;50 a day](#) and Luxembourg is experimenting with [free public transport](#) including in rail. Post Coronavirus it is more important than ever that policies attract passengers back to public transport.

19.2. Congestion can be reduced by implementing long-term strategic planning that considers the whole transport system and that provides rail with the right level of investment to enable it to provide greater capacity for both passengers and freight. Investment in rail creates an opportunity for modal shift. For instance, a 2021 [report](#) produced by Deloitte, and commissioned by the Rail Delivery Group, finds that rail

freight takes on average nearly 8,000 lorry journeys off the road each day – providing significant congestion relief.

- 19.3. We welcome the Commission’s recognition of the need for a rolling programme on electrification and recognition of rail as an efficient mode of inter-urban and urban transport. This is crucial, as outlined in RIA’s [‘Why Rail Electrification?’](#) report. The UK risks falling behind – electricity currently provides only 4% of UK rail freight’s energy requirement, compared with 56% in continental Europe. A rolling programme of electrification, and capacity enhancement of existing networks, would enable the rail freight network to contribute to congestion alleviation in the greenest and most efficient way. The Commission can play an important role in championing the strategic need for rail electrification to achieve these objectives.
- 19.4. As highlighted in the RIA [Electrification Cost Challenge](#) report, cost effective electrification requires long term certainty. This unlocks private investment in assets and skills with incremental improvements over time. There are opportunities to consider the business models for electrification including better alignment of investment with asset life cycles. Hiatus in electrification investment should be avoided given the scale of electrification needed to meet zero carbon, the benefits this brings for passengers and freight including modal shift, effective use of limited energy resources and congestion reduction.

Recommendation 9: Recognise the role of rail in creating capacity for other transport modes and in enabling congestion relief. Support a rolling programme of electrification and engagement with the supply chain on cost effective delivery for passengers and freight. Include rail fares in wider consideration of demand management in order to maximise the benefits and ensure effective use of the rail network.

20. *Question 17: What are the barriers to a decision making framework on interurban transport that reflects a balanced approach across different transport modes?*

- 20.1. Effective management requires a balance between national and local structures. Devolution is essential to ensure an effective focus on passenger and local priorities. However, this needs to be paired with long-term strategic thinking that can, for instance, enable investments in high-speed lines providing effective interurban transport and creating more capacity for other modes of transportation.
- 20.2. RIA welcomes the Commission’s support for multi-year funding settlements for devolved Government transport bodies, in order to enable them to work with the supply chain to deliver local and integrated priorities effectively.

Recommendation 10: Support devolution and multi-year funding settlements for devolved Government transport bodies.

Railway Industry Association
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