

Mr Boris Johnson MP
Prime Minister
10 Downing Street
London



Dear Prime Minister,

HS2, the Integrated Rail Plan, the Union Connectivity Review, the Great British Railways initiative and Dr John C Houbolt

On 15th November 1961, NASA rocket engineer Dr John C Houbolt wrote a letter¹ that would transform the fortunes of a faltering US space programme. In his letter, Dr Houbolt challenged the widespread ‘groupthink’ within NASA’s technical leadership that would dictate an unfeasibly gigantic rocket to take astronauts all the way to the Moon, and back.

Instead, he advocated the strategy of ‘lunar rendezvous’ which would require a much smaller and more feasible rocket; by this strategy a Command Module would remain in orbit, while a Lunar Expedition Module would descend to the Moon’s surface, before blasting off to rendezvous with the Command Module, and then return to Earth. Dr Houbolt posed a very simple challenge to NASA management:

- “Do we want to get to the moon, or not?”

History of course records that NASA adopted Dr Houbolt’s strategy; after blasting off from Earth atop a Saturn 5 rocket, astronauts Neil Armstrong and Buzz Aldrin stepped onto the Moon on 21st July 1969, and returned safely to the Earth 3 days later. But without Dr Houbolt’s intervention, it is very probable that the US space programme would have failed.

I am writing on exactly the same basis concerning the UK high speed rail project; and a very similar challenge applies:

- “Do we want a national railway network that connects and unifies the nation, or not?”

This might seem a surprising challenge, given the recent launch of your Government’s ‘Great British Railways’ initiative with its core commitment² to ‘one connected network’. As you will no doubt appreciate, such a network is utterly vital to realising many core policy goals of your Government’s programme including:

- Levelling-up/rebalancing of the UK economy;
- Achieving ‘Net Zero’ transport sector CO₂ emissions;
- Strengthening transport links between the UK nations;
- ‘Building back better’ after the Covid-19 pandemic.

But if HS2 and the as yet unpublished³ ‘Integrated Rail Plan’ (which your Ministers are now heavily promoting) fail to bring about a national rail network delivering optimised connectivity between the many communities of the United Kingdom, all of these policies and commitments are doomed either to fail, or to catastrophically underperform. Your agenda to ‘level-up’ the UK economy would be left utterly discredited, as would your Government’s commitment⁴ to a ‘Net Zero’ CO₂ emission railway system operating on ‘one connected network’.

I have no doubt as to the sincerity of your intentions; but the truth of the matter, in terms of spades in the ground and committed schemes, is starkly different. Construction of HS2, the largest single UK rail project in over a century, is now proceeding with no coherent plan for how the ultra-fast and fundamentally disconnected high speed line that HS2 Ltd’s technocrats want to build, will ever develop into the enhanced, integrated, cost-effective and environmentally optimised national rail network that the people of the UK actually need.

None of this is conjecture on my part; the failure of the UK’s railway establishment to develop the network that the nation needs is evidenced in every report ever published by either HS2 Ltd, or by the organisations (respectively Transport for the North and Midlands Connect) that have based their Northern Powerhouse Rail and Midlands Rail Hub schemes upon HS2:

- There is no specification for how the national rail network should perform;
- There is not even the most basic assessment of the ability of any scheme (or combination of schemes) to interconnect the UK's major cities;
- There is no recognition that predication upon the established HS2 proposals will hugely compromise performance of every other scheme (particularly Northern Powerhouse Rail and Midlands Rail Hub) intended to improve the national network.

This collective failure of railway engineering design will be exposed with the publication of the Integrated Rail Plan. You will be compelled to explain why an Integrated Rail Plan based upon HS2 performs far worse⁵ than an Integrated Rail Plan that is not based upon HS2. You will also have to explain why slavish conformance with the deeply flawed HS2 is more important than optimised performance as a regional or national network.

Detractors within the UK transport establishment may well advise you (to echo the words of Dr Houbolt) that you are dealing with a crank. Do not be afraid of this. With the future of the national railway network, and possibly also the future of the nation at stake, it is crucial that you receive advice that is the best, the most competent and the most robust to challenge.

I am utterly confident in my advice to you, because it is supported by over 15 years of work in developing High Speed UK⁶ (HSUK) as a national network that demonstrably succeeds in connecting the nation. The competence of the UK transport establishment in designing HS2 et al to meet this clear and obvious need can be demonstrated through 7 simple challenges:

1. How have you assessed and measured HS2's success in delivering 'hugely enhanced capacity and connectivity'⁷ between the UK's major conurbations?
2. How have you determined that HS2 is the best means of achieving this objective?
3. How have you designed HS2, Northern Powerhouse Rail (NPR) and Midlands Rail Hub (MRH) to integrate with the existing UK rail network, and thus achieve the best possible links between all of the UK's major cities?
4. How have you developed the Integrated Rail Plan to remedy the disconnection between HS2, NPR, MRH and the existing railway system, and thus achieve the best possible network interlinking all UK communities?
5. How have you determined that a national railway network based upon HS2, NPR and MRH will bring about the greatest possible road-to-rail modal shift, and thereby make the greatest possible contribution to reducing CO₂ and other greenhouse gas emissions?
6. Where is your network connectivity analysis, to match that undertaken by HSUK⁸?
7. Please explain why the official proposals, variously HS2, NPR, MRH etc, perform so poorly on every conceivable criterion against the HSUK Exemplar Alternative.

These challenges all revolve around the self-evident priority of an optimised national railway network delivering the greatest possible benefit to the nation - a priority which has somehow escaped the great and the good of the UK transport establishment. I would urge you to use your authority as Prime Minister to ensure that they provide a) verifiable and quantifiable guarantees as to the performance of HS2, and b) proper answers to the challenges that I have set out above, and laid out in much greater detail in Annex 1 and in the appended reports.

I will conclude this letter with the words of US President John F Kennedy in a speech that he was due to give on the evening of 22nd November 1963:

"...this country is moving and it must not stop. It cannot stop. For this is a time for courage and a time for challenge. Neither conformity nor complacency will do."

JFK's words were of course intended to apply to the USA in the 1960s. But I am sure you would agree that they are just as applicable to the UK in the 2020's. The people of the United Kingdom deserve not any railway network, but the best possible railway network, designed to the highest professional standards to deliver the greatest possible capacity and connectivity between the UK's major communities. Second-rate and second-best are not good enough.

Yours sincerely,

Colin Elliff BSc CEng MICE
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7 Key Questions the UK Transport Establishment Must Answer

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Enclosures:

- Annex 1 HS2 and the UK High Speed Rail Project - the Design Disaster fully Documented.
- Appendix A: Connectivity charts showing performance of existing, HS2 & HSUK networks.
- Appendix B: HSUK assessment of Integrated Rail Plan performance in Midlands.
- Appendix C: HSUK assessment of Integrated Rail Plan performance in Northern Powerhouse.
- Appendix D: HSUK submission to Union Connectivity Review.

End Notes:

¹ The text of Dr Houbolt's letter to NASA management can be found via the following link:
<https://space.stackexchange.com/questions/2823/text-of-john-houbolts-letter-proposing-lunar-orbit-rendezvous-for-apollo>

² P33, *Great British Railways : The Williams-Shapps Plan for Rail*, DfT, May 2021

³ The development of an 'Integrated Rail Plan for the Whole GB Network' was a key recommendation of the *Oakervee Review of the HS2 Project*, DfT, February 2020, to demonstrate how HS2 would be integrated with other major rail projects (Northern Powerhouse Rail/NPR and Midlands Connect/MC) and the existing railway network. The Integrated Rail Plan was remitted for publication before the end of 2020; so far (September 2021) it remains unpublished.

⁴ P9 & P79, *Decarbonising Transport: A Better, Greener Britain*, DfT, July 2021

⁵ Appendices B & C set out structured comparisons of network performance for Integrated Rail Plans based on the full HS2 'Y-network' plus NPR & MC, and on the HSUK Exemplar Alternative. These comparisons focus upon:

- Conformance with any core specification for journey time/service frequency;
- Achievement of direct links between all principal regional cities;
- Delivery of maximised journey time reductions across regional network;
- Full integration with local services at city centre stations;
- Delivery of step-change capacity gains for local services;
- Provision of radically enhanced capacity for railfreight;
- Optimisation of direct links and journey times to principal population centres across national network.

⁶ The High Speed UK Exemplar Alternative is documented in Appendices A, B & C, and www.highspeeduk.co.uk.

⁷ HS2's objective of 'hugely enhanced capacity and connectivity' was stated in *High Speed Rail: Investing in Britain's Future – Decisions and Next Steps*, published January 2012 by DfT, and repeated in evidence given to the HS2 Select Committee by HS2 Ltd Technical Director Andrew McNaughton on 30th November 2015.

⁸ See Appendices B and C. Much further detail can be found on www.highspeeduk.co.uk.