



ANNEX F

Major Projects Authority Project Assessment Review (PAR)

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Programme or project:	High Speed Two (HS2)
Version number:	V1.0
Date of issue:	25/09/15
Organisation:	Department for Transport & HS2 Limited
Senior Responsible Owner (SRO)	David Prout
Chief Executive, HS2 Ltd	Simon Kirby
Programme/Project Director (or equivalent)	Nick Bisson, Caroline Botwood, Michael Hurn, Jonathan Sharrock, Paul Rodgers,
Business Case stage reached:	Outline Business Case (OBC) - Phase 1 Strategic Outline Business Case (SOBC) - Phase 2 (as combined in the Business Case published October 2013)
Decision/approval point this report informs:	MPRG Panel – 20 October 2015
Review date:	21-25 September 2015
Review Team Leader:	Marion Price
Review Team Members:	David Evans, Jonathan Barratt
Departmental Review Team Member:	Jim Robinson
Previous review and date:	Not Applicable

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1. Executive Summary

This review was undertaken at an early stage in the development of the business case for the acceleration of Phase 2a. Consequently, the documentary evidence is still under development. Nonetheless, there seems to be a good case for acceleration of Phase 2a, which is expected to deliver journey time savings and increased capacity to the North earlier among other benefits.

The review found evidence of professional, experienced and enthusiastic teams within HS2 Limited and High Speed Rail Group, committed to the successful delivery of this challenging and important project. There appears to be an effective and proportionate governance regime to oversee and provide direction to Phase 2a and to manage interfaces, risks and issues.

There is a strong commitment to learn lessons not only from work on Phase 1 of HS2 but also from Crossrail, Thames Tideway and other large infrastructure projects. An International Benchmarking Study has been undertaken by PwC mainly focussing on high speed rail projects in Europe. A working group has recently been established to analyse the findings of this report and their applicability in the UK context. Up to £7bn of savings may be achieved through adopting different ways of working but the ability to realise them is uncertain.

The concerns and interests of a wide range of stakeholders affected by Phase 2a are well understood and effective processes are in place to monitor and manage them.

However, there are some significant risks. Most significant at this stage is affordability within the capped budget of £50.1bn (Q2 2011 ECs) for HS2 as a whole. A major efficiency programme is under way to identify opportunities to design and build to cost. This is an area that will need constant monitoring and control, not least given some suggestions that 40% optimism bias on Phase 2 may be inadequate. In general terms overall schedule risk, leading to cost growth, needs to be monitored and managed for Phase 2a to be affordable. Should it transpire that Phase 2 as a whole is not affordable the prioritisation of Phase 2a should be revisited.

Another key risk is the developing state of HS2 Limited as an organisation whilst concurrently delivering a complex, high risk project. Plans to relocate large parts of the organisation from London to Birmingham, whilst understandable, may temporarily disrupt its development, damage morale and could hamper efficient communications internally, as well as with DfT and other parts of central government.

Interfaces between DfT, HS2 Limited and Network Rail, both organisational and technical, require close attention since these have the potential to delay progress and create significant cost growth or to disrupt existing live train services.

Delivery Confidence Assessment (DCA)

The Delivery Confidence is an assessment of whether the evidence is sufficient and robust enough to enable the government to make a decision to accelerate the building of Phase 2a, and whether the Phase 2a part of the HS2 project is ready to progress to the next stage.

Given the significant risks outlined above, which the programme is alive to, the DCA allocated is Amber.

Areas of concern

Affordability of Phase 2 in its entirety

The developing state of HS2 Limited

The move to Birmingham

A complex project with a number of significant interfaces

Areas that are working well

Professional, enthusiastic and committed teams

Robust governance

Stakeholder engagement and relationship management

Active learning of lessons internally and from other projects

Additional comments from the SRO

I would like to thank Marion, David, Jonathan and Jim for their hard work and collaborative attitude. I am grateful for their report, and agree the Delivery Confidence Assessment and the recommendations held within it.

2. Scope of the Review

Strategic & Financial Case

1. Is the business case robust and does it provide a clear case for the accelerated Phase 2a route to Crewe?
2. Is there a strong strategic rationale for the acceleration?



Value for Money

4. Has the programme provided an economic case including cost benefit analysis that indicates good value for money?
5. What are the impacts of the acceleration on the value for money of a) the HS2 programme as a whole and b) Phase 2 as whole? Are these implications understood?

Cost and Affordability

6. What is the latest cost position for Phase 2a? What work is underway to ensure these costs remain within the designated envelope? How have lessons learned from Phase 1 been adopted to reduce Phase 2a costs?
7. How are findings from the International Benchmarking Study being applied to Phase 2a?
8. What is the financial impact of accelerating Phase 2a construction to Phase 2 as a whole? How does this impact the ability to deliver the rest of Phase 2 within budget?

Deliverability and Capability

9. Are appropriate mitigation plans in place to address the key risks on Phase 2a, with specific time-bound actions and owners? Are the concerns of key stakeholders on Phase 2a fully understood and being actively managed?
10. Are interfaces (for example Phase 2a - 2b and the existing network) fully understood and actively being managed?
11. Are appropriate plans in place to ensure the coherent and comprehensive external communication of the Phase 2a project?

Readiness

12. Are there effective governance structures and resources in place for this phase of the project?
13. Is the current timetable to deposit the hybrid Bill in 2017 feasible and realistic? Is a target opening of 2027 realistic?
14. How are you preparing to move from the route decision to hybrid bill development phase? How are you identifying and addressing the capability and organisational needs of a different phase of development?

Taking all the above in to account (i.e. the answers to the 14 ToR questions), is the evidence sufficient and robust enough to enable the government to make a decision to accelerate the building of Phase 2a, and is the Phase 2a part of the HS2 project ready to progress to the next stage?

3. Summary of Recommendations

No	Recommendation (extract from the from body of the report)	Criticality (high/med/low)	Do by when? (date)
1.	Optimism bias levels should be reviewed regularly and reported on at each iteration of the business case.	Medium	For next version of the business case
2.	In preparation for the Phase 2a hybrid bill, the relative strategic priority of the Birmingham to Crewe section should be explained against alternative sections of the HS2 Phase 2 route.	Medium	By end 2015
3.	Building on existing governance relationships, ensure a robust strategy is in place to manage organisational and key technical dependency risks between HS2 Limited, DfT and Network Rail.	Medium	Ongoing
4.	Contingency planning around all elements of Phase 2a should be maintained, with priority given to any opportunity to bring the opening date even further forward.	Low	Ongoing

4. Summary of the Programme or Project

Background and context

HS2 is a new high speed rail network for the UK, connecting London with major cities in the midlands and the north of England. It is a Y shaped network that will be delivered in two Phases.

The line would be capable of allowing speeds up to 250mph. The Government is committed to providing a strong basis for long-term and sustainable economic growth by creating the right environment for private enterprise to flourish and by re-balancing the UK economy. High Speed Rail is intended to play a key strategic role in delivering these objectives. It could deliver a significant increase in rail capacity to meet the rising demand for long-distance rail travel and ease overcrowding on existing railways. High speed rail could also have the potential to play a central role in promoting long-term and sustainable economic growth.

The programme is being led by a combination of teams within the Department for Transport (DfT), HS2 Ltd, a Non-Departmental Public Body and Network Rail.

Phase One of HS2 will see a new high speed line constructed from Euston to north of Birmingham, where it will re-join the existing West Coast Main Line, allowing fast, direct services to destinations including Manchester, Liverpool, Crewe, Preston and Glasgow. New high speed trains will serve Birmingham city centre and an interchange station designed to serve the wider West Midlands. At Old Oak Common in West London, a new interchange will be built connecting HS2 with Crossrail and the Great Western Main Line. Phase One will be built and operational by 2026.

The proposals for Phase Two will extend the line to the north-west and north-east, to join the West Coast Main Line south of Wigan and Crewe, and the East Coast Main Line approaching York. They include new stations in the city centres of Manchester and Leeds, with intermediate stations in the East Midlands and Sheffield. Phase Two will be completed seven years after Phase One in 2033.

The sooner HS2 is built, the sooner these benefits are delivered. That is why it is proposed to build the section to Crewe more quickly, to be delivered in 2027, six years earlier than planned.

Accelerating delivery of this section of HS2 as the “Phase 2a” scheme will deliver faster journeys from London to Manchester, Crewe, Liverpool, Preston, Warrington, Wigan and Glasgow. Building faster to Crewe means that the North West and Scotland will see more of the benefits of HS2 more quickly, and this brings economic benefits sooner.

Aims and objectives

The over-arching strategic objectives for Phase 2a are the same as those for the whole scheme. These were set out in the 2013 strategic case for HS2. Once connected to the rest of Phase Two, the preferred option will need to meet these overall objectives to:

- build a stronger, more balanced economy capable of delivering lasting growth and widely shared prosperity
- provide sufficient capacity to meet long term demand, and to improve resilience and reliability across the network
- improve connectivity by delivering better journey times and making travel easier
- minimise disruption to the existing network; use proven technology that we know can deliver the desired results; be affordable and represent good value to the taxpayer; and minimise impacts on local communities and the environment

Key Milestones

Milestone	Date
Phase 2A Route announcement	Autumn 2015
Royal Assent for Phase 1 hybrid Bill	Dec 2016
Deposit of the Phase 2A hybrid Bill	Jul 2017
Royal Assent for Phase 2A hybrid Bill	End 2019
Start of Phase One service	2026
Phase 2a route to Crewe operational	2027
Phase Two service fully operational	2033

5. Detailed Review Team Findings

Strategic and Financial Case

Is the business case robust and does it provide a clear case for the accelerated Phase 2a route to Crewe?

Is there a strong strategic rationale for the acceleration?

[REDACTED]

Value for Money

Has the programme provided an economic case including cost benefit analysis that indicates good value for money?

What are the impacts of the acceleration on the value for money of a) HS2 programme as a whole and b) Phase 2 as a whole? Are the implications understood?

The business case for HS2 as a whole is clear with a BCR of 2.3 including wider economic impacts. Within this Phase 2a as a standalone scheme has an acceptable BCR of 1.4 which lies within the range typical for railway projects. Accelerating Phase 2a has a positive impact since revenue and benefits come on stream earlier. The BCR will be kept under review as SR15 proceeds.

The draft SOBC, including the economic case, is being assured by the independent Project Representative (P-Rep). Value for money of HS2 as a whole is shown as high and within this the value for money of Phase 2a is positive.

The risks and benefits of accelerating Phase 2a are well understood. It is likely to have a small but positive impact on the value for money of Phase 2 and of HS2 as a whole. It is expected that the £50 million cost of the additional hybrid bill will be outweighed by construction savings and additional revenue.

Cost and Affordability

What is the latest cost position for Phase 2a? What work is underway to ensure these costs remain within the designated envelope? How have lessons learned from Phase 1 been adopted to reduce Phase 2a costs?

How are findings from the International Benchmarking Study being applied to Phase 2a?

What is the financial impact of accelerating Phase 2a construction to Phase 2 as a whole?

How does this impact the ability to deliver the rest of Phase 2 within budget?

Costings for Phase 2a at [REDACTED] (Q2 2011 ECs) are necessarily at an early stage as only a small percentage of the design work is complete and no ground condition surveys have yet been undertaken. Optimism bias at 40% has been calculated on a composite basis though there are questions about whether this is appropriate given the immature design of this section of the project.

Lessons from Phase 1 preparatory activities are being adopted. However, it will inevitably be the case that learning from construction on Phase 1 cannot be fully incorporated into the Phase 2a construction planning given the overlapping timescale.

The most recent International Benchmarking Study, as well as its predecessors, indicate potential opportunities for significant cost reduction within scope. Work to investigate this is about to commence and must be prioritised.

Overall accelerating Phase 2a is likely to reduce Phase 2 delivery costs. Firstly, because of reduced impact of inflation over time on construction costs and secondly because of the ability to avoid remobilisation costs following the completion of Phase 1. The use of Phase 2a work to incentivise Phase 1 contractors' performance is seen as good practice.

There remains uncertainty about the ability to deliver Phase 2 as a whole within the available budget, and further efficiency savings will be required to achieve this. Work is under way to identify and achieve these efficiencies. We have been told that these savings have been pro-rated to Phase 2a. Accelerating this phase helps the overall affordability of Phase 2.

Recommendation 1: Optimism bias levels should be reviewed regularly and reported on at each iteration of the business case. Medium

Recommendation 2: In preparation for the Phase 2a hybrid bill, the relative strategic priority of the Birmingham to Crewe section should be explained against alternative sections of the HS2 Phase 2 route. Medium

Deliverability and Capability

Are appropriate mitigation plans in place to address the key risks on Phase 2a, with specific time-bound actions and owners? Are the concerns of key stakeholders on Phase 2 fully understood and being actively managed?

Are interfaces (for example, Phase 2a – Phase 2b and the existing network) fully understood and actively being managed?

Are appropriate plans in place to ensure the coherent and comprehensive external communication of the Phase 2a project?

We have seen some evidence of risk identification and mitigation plans for Phase 2a including time-bound actions, owners and an active management process. However, at this time these actions are necessarily immature and we are unable to form a view of their likely effectiveness.

The concerns of stakeholders affected by Phase 2a are well understood and effective processes are in place to monitor and manage them. The stakeholder management strategy for Phase 2a

embraces a wide range of directly affected parties, and complements wider HS2 stakeholder management at a national level. These links appear to be effective at this stage.

Interfaces, both organisational and technical, are being addressed. Management of organisational interfaces is being taken forward by cross-representation on key governance and oversight structures as well as through some interchange of key individuals between HS2 Limited, Network Rail and DfT. Understanding of technical interfaces is at an early stage and considerable work is under way to identify and quantify them. This risk requires continual attention. Given the considerable dependencies on Network Rail to deliver the benefits of Phase 2a and HS2 as a whole, maintaining a strong relationship between HS2 Limited and Network Rail is critical for success.

There is an active communications plan being developed for Phase 2a which will build on that in place for HS2. We heard that this will target the concerns and interests of a wide range of external stakeholders.

<p>Recommendation 3: Building on existing governance relationships, ensure a robust strategy is in place to manage organisational and key technical dependency risks between HS2 Limited, DfT and Network Rail.</p> <p>Medium</p>

Readiness

Are there effective governance structures and resources in place for this phase of the project?

Is the current timetable to deposit the hybrid bill in 2017 feasible and realistic?

Is a target opening of 2027 realistic?

How are you preparing to move from the route decision to hybrid bill development phase?

How are you identifying and addressing the capability and organisational needs of a different phase of development?

There appears to be an effective and proportionate governance regime to oversee and provide direction to Phase 2a and to manage interfaces, risks and issues. As an example, there is a tripartite Route Acceleration Project board (DfT, Network Rail, HS2 Limited) which brings focus on this decision within the wider context of Phase 2 and ensures coherence.

However, any overrun of the Phase 1 hybrid bill would delay introduction of the Phase 2a hybrid bill and this risk needs to be carefully managed. It is expected that Phase 2a hybrid bill parliamentary process would draw on resources and learning from Phase 1 and this work is already in hand. A Phase 2a team has been established to take forward design work and hybrid bill development following an announcement on the route, subject to the approval of the acceleration of Phase 2a.

Assuming Royal Assent is achieved in 2019 for Phase 2a then the target opening of 2027 is realistic but challenging: Phase 2a construction is considered technically straight-forward although some risks remain such as the potential for worse than expected ground conditions. Opening Phase 2a in 2027 is predicated on the on time delivery of Phase 1. DfT and HS2 Limited should keep under review any possibility of opening Phase 2a earlier, in 2026, to align with the opening of Phase 1.

Recommendation 4: Contingency planning around all elements of Phase 2a should be maintained, with priority given to any opportunity to bring the opening date even further forward. Low

6. Additional Information for the MPRG panel

Issue

Affordability

Evidence and findings

The current budget of £50.1bn for HS2 is capped. Delivery of the whole scheme within this looks challenging. Work to identify efficiency measures is under way but at an early stage.

Suggested lines of enquiry

- Does the proposed cost envelope for Phase 2a allow Phase 2b to remain affordable?
- Should Phase 2a be prioritised if the whole of Phase 2 cannot be afforded?

Issue

HS2 Limited

Evidence and findings

HS2 Limited is an impressive but still developing company, containing many new staff and structures. Work is in hand to build a coherent and cohesive delivery organisation. A move for large parts of the organisation to Birmingham is planned starting in early 2016.

Suggested lines of enquiry

- What plans are in place to ensure continuity of key skills and communication?
- Do you feel you can recruit the right people with the right skills?

Issue

Network Rail interfaces

Evidence and findings

Network Rail is a key dependency to the successful delivery of HS2 but is already under severe pressure in organisational and budgetary terms. There are numerous organisational and technical interfaces presenting significant risk, which work is in hand to manage.

Suggested lines of enquiry

- Are the appropriate governance arrangements in place at all levels of seniority to ensure joined up working with Network Rail and is there a shared understanding of risk?

Annex A – Progress against previous review recommendations

N/A

Annex B – List of Interviewees

The following stakeholders were interviewed during the review:

Name	Role/title	Organisation
David Prout	Director-General, High Speed Rail Group and SRO	DfT
Sir David Higgins	Chairman	HS2 Ltd
Simon Kirby	Chief Executive	HS2 Ltd
Alison Munro	Managing Director of Development	HS2 Ltd
Nick Bisson	Director, Phase 2	DfT
Colette Carroll	Route Acceleration Director, Phase Two	HS2 Ltd
Adam Simmons	Deputy Director, Phase 2a	DfT
Andrew McNaughton	Technical Director	HS2 Ltd
Matthew Million	Strategy & Analysis	HS2 Ltd
Caroline Botwood	Programme and Funding Director	DfT
David Hutchinson	Project Representative (P-Rep)	
Jim Morgan	HS2 Liaison Lead, Integrated Planning and Change	Rail Executive
Jo Kaye	Strategy and Planning Director	Network Rail
Stephen Dance	Head of Infrastructure Delivery	Infrastructure UK
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]
Sam Houston	Head of Project and Client Management	HS2 Ltd
Paul Griffiths	Phase 2 Development Director	HS2 Ltd
Andy Taylor	Head of Public Affairs	HS2 Ltd
[REDACTED]	[REDACTED]	[REDACTED]
Andrew Went	Development Director, Crewe Hub	Network Rail