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Department for Transport

High Speed 2: A review of early programme preparation

Key facts

£15.4bn to £17.3bn

estimate of the capital cost of constructing phase one

2026

phase one, between London and the West Midlands, is due to open

1.4 to 1

the most recent transport benefit–cost ratio for phase one, published in August 2012

2.5 to 1 August 2012 benefit–cost ratio for the Y-shaped network from London to the West Midlands, Manchester and Leeds, when wider economic impacts are also included. For phase one this ratio is 1.7 to 1

£3.3 billion Amount to be found by government spread over the four peak years of construction of phase one (2017-18 to 2020-21) to cover the gap between the Department's forecast capital spending and its capital budgets if these were kept at 2014-15 levels

Summary

Introduction

1 In January 2012, the Department for Transport (the Department) decided to proceed with High Speed 2, a programme to develop a new high-speed rail network between London, the West Midlands, Manchester and Leeds (Figure 1 in Part One). The Department supported its decision with a strategic outline business case.

2 The Department has developed its case for High Speed 2 incrementally. In January 2009, the Department set up a wholly-owned company, High Speed 2 (HS2) Limited, to advise on the case for high-speed services by first developing options for a new line between London and the West Midlands. Before its January 2012 decision, the Department announced its plans to develop a Y-shaped network in March 2010. It consulted on this strategy, as well as its proposed route for the first phase between London and the West Midlands, in 2011.

3 The programme is still at a very early stage. Since the January 2012 decision, the Department has published its preferred route for the second phase, two spurs from the West Midlands to Manchester and Leeds. It plans to complete an outline business case in 2013 before it introduces a hybrid bill to Parliament for phase one.

4 The Department's objectives for High Speed 2 are to:

- increase rail capacity to meet growing demand and tackle the projected shortage of capacity on the West Coast Main Line;
- encourage sustainable long-term, including regional, economic growth; and
- help support the government's objectives to reduce carbon emissions, by shifting passengers to rail travel from air and road.

Scope of the report

5 This, our first report on High Speed 2, is an early look at the Department's progress in putting in place the foundations for successful programme delivery. We summarise our audit approach and methods in Appendices One and Two. This report examines:

- the Department's case for building a high-speed railway (Part Two);
- the Department's cost estimate for phase one, between London and the West Midlands, and its assessment of the programme's affordability (Part Three); and
- how the Department has set up the programme (Part Four).

We will carry out regular reviews of the programme as it progresses.

Key findings

Business case

6 **The Department's strategic reasons for developing High Speed 2 are not presented well in the business case.** In our view, the strategic case should be better developed at this stage of the programme. In line with its guidance, the Department has focused on developing the economic case which includes estimating benefit–cost ratios for phase one and the full Y-shaped network:

- The Department's general approach for assessing the economic case for High Speed 2 is consistent with how it appraises other transport projects and is a useful tool when comparing similar projects and programmes. This methodology puts a high emphasis on journey time savings, from faster and more reliable journeys. The relationship between these savings and the strategic reasons for doing the project, such as rebalancing regional economies, however is unclear (paragraphs 2.9 to 2.12).
- The strategic case contains evidence of general growth in rail travel but has limited evidence on where, and by how much, increases in capacity are needed on the West Coast Main Line. Including this information would help the Department to demonstrate why it has concluded that alternative options would not deliver sufficient capacity to meet forecast passenger demand (paragraphs 2.4 to 2.6 and 2.22 to 2.23).

- It is not clear how High Speed 2 will deliver the Department's strategic objective of delivering and rebalancing economic growth. The Department estimates the line will support 100,000 jobs through development around stations, and in constructing and operating the line. It does not know how many jobs would be created without this investment. The benefit–cost ratio includes a calculation of wider economic impacts. This recognises that improving transport connections and reducing transport costs brings benefits to businesses and workers, but does not attribute impacts to specific locations. HS2 Limited has recently commissioned work to understand the likely impacts of High Speed 2 on regional economic growth (paragraphs 2.7 to 2.8 and 2.11).
- It is unclear to us whether the business case covers the full Y-shaped network or just the route between London and the West Midlands. The Y-shaped network has a stronger economic case but this is much less certain as route designs are less well-developed. HS2 Limited's most recent benefit–cost ratio analysis, published in August 2012, is 1.9 to 1 for the Y-shaped network compared to 1.4 to 1 for phase one. Including wider economic impacts the figures are 2.5 to 1 and 1.7 to 1 respectively (paragraphs 2.9, 3.8 and Figure 6).

7 The benefit–cost ratio will change during the lifetime of the programme. This is to be expected as the ratio is sensitive to changes in the data underpinning assumptions, particularly cost estimates, GDP growth forecasts and the relationship between GDP and passenger demand. This sensitivity and the long time horizons for High Speed 2 mean that the ratio for phase one is unlikely to stay at 1.4 to 1 (paragraphs 2.9 and 2.13).

8 The benefit–cost ratio calculated for phase one has twice contained errors and the Department has been slow to carry out its own assurance of the underlying analysis. The first benefit–cost ratio HS2 Limited estimated, in March 2010, – at 2.4 to 1, restated to 2.6 to 1 to be comparable with later calculations – was significantly higher than the ratio the Department had calculated for a similar stage of the High Speed 1 project. HS2 Limited subsequently found that the ratio contained errors in how passenger demand was modelled, which had the effect of double-counting some benefits. When HS2 Limited corrected these errors and also incorporated lower GDP growth forecasts the ratio for phase one published in February 2011, without wider economic impacts, reduced to 1.6 to 1. HS2 Limited identified another error in the passenger demand forecasts used to calculate the phase one benefit–cost ratio which supported the Department's decision in January 2012. In both instances HS2 Limited published corrections to the economic case. During the summer of 2012, the Department increased its oversight of the analysis. In addition, HS2 Limited began to plan in November 2011, an independent audit of the passenger demand forecasts and analysis behind the ratio. This audit began in August 2012 and is due to report later in 2013 (paragraphs 2.9 and 2.13 to 2.16).

9 In our opinion the Department and HS2 Limited should update the data underpinning key assumptions in the benefit–cost ratio:

- The most recent benefit–cost ratio does not contain the Department's current assumption on the relationship between passenger numbers and GDP growth. In August 2012, the Department adopted a lower assumption for long-distance rail travel. This means passenger numbers are expected to grow more slowly when GDP increases. This will be one of several changes in assumptions which the Department and HS2 Limited are making and the overall impact of these changes on the next benefit–cost ratio is uncertain (paragraph 2.18).
- In line with its guidance, the Department uses the most up-to-date data available. However, to calculate benefits for business travellers, the largest estimated benefit, the Department is using data which are over ten years old. The Department estimates phase one will deliver £12.6 billion (2011 prices and present values) benefits to business travellers from faster, more reliable and less crowded journeys. The value it uses for business travellers' time is higher than for other types of travellers, and is based on survey data from 1999 to 2001. The Department also needs to research how business travellers use their time on trains (paragraphs 2.10 and 2.20).
- HS2 Limited has not yet analysed the effect of premium pricing on forecast passenger demand, revenues and the benefit–cost ratio. To forecast passenger demand, HS2 Limited uses the same average fares for high-speed and conventional rail in its models, although premium fares are charged on High Speed 1. In August 2012, HS2 Limited began developing new tools designed to model different fare prices and potential competitive responses to High Speed 2 (paragraph 2.21).

Programme management

10 The Department's published timetable for introducing the hybrid bill for phase one to Parliament is October 2013. We believe this is overambitious. The Department's programme plan is now based on introducing the bill in December 2013, which is still challenging. The timetable contains no contingency and is shorter than for other comparable programmes although much work is needed to support the bill. For example, the Department and HS2 Limited have had to carry out a year-long survey before assessing the environmental impact of the line, consulting and making changes to the route design to reduce impacts. Our report on cancelling the InterCity West Coast franchise procurement highlighted the mistakes that can be made in trying to meet an unrealistic timetable (paragraphs 4.4 to 4.7).

11 The Department's management and oversight of the programme needs further improvement. We have summarised our findings, below, against five safeguards against poor decision-making – clarity of objectives, strong project and programme management, senior management oversight, effective stakeholder engagement, and assurance. We reported that these safeguards had failed in the InterCity West Coast franchise procurement and we have, therefore, examined whether these issues could be repeated on High Speed 2.

Clarity of objectives

12 The relationship between the Department's strategic objectives for High Speed 2, such as rebalancing the economy, and journey time savings, the largest quantified benefit in the economic case, is unclear. The Department has not structured its programme management around how it will deliver the strategic objectives. Decisions that are being made at this early stage to control costs may impact on achieving the programme objectives, for example on developments around stations (paragraph 4.10).

Strong project and programme management

13 The Department has taken steps to improve programme management. For example, the Department developed a critical path of activities in October 2012, which the programme board started to use in February 2013 to coordinate programme tasks (paragraphs 4.11 to 4.13).

Senior management oversight

14 The Department strengthened its oversight by appointing a director general whose sole responsibility is high-speed rail. Up to January 2013, the senior responsible owner for High Speed 2 was the 'Director General, Domestic', who had a number of other responsibilities. More of the staff contributing to the programme will be line managed by the new senior responsible owner under the arrangements introduced in January 2013. The Department has also appointed two new directors to oversee key areas of the programme (paragraphs 4.14 to 4.15).

Effective engagement with stakeholders

15 The Department is not sufficiently engaged with its stakeholders. The Department is responsible for managing some relations, particularly with other government departments, while HS2 Limited leads on relations with communities. There have been past issues with coordination with other government departments. For example, there was a lack of clarity between the Department and HS2 Limited over the cross-government approvals process that HS2 Limited needed to follow before letting some contracts. This process provides assurance but meant that HS2 Limited could not let contracts as quickly as it had planned (paragraphs 4.16 to 4.18).

Assurance

16 The Department has been slow to respond to issues raised by internal and external assurance. The Major Projects Authority first alerted the Department to risks to the timetable, governance arrangements and resources in late 2011 and the need to plan ahead for future developments. The Department's own internal auditors raised concerns about governance and resources again in October 2012 and the Department has not yet fully implemented the recommendations they made (paragraphs 4.19 to 4.20).

Cost estimating and affordability

17 The Department made an early estimate of the cost of constructing phase one for its business case and to assess affordability, which will change as costs become firmer. The Department's January 2012 £16.3 billion (2011 prices, undiscounted) cost estimate for constructing phase one was made by a high level desk-based exercise. In some of the Department's documents the estimate is given as a range of between £15.4 billion and £17.3 billion. We would have expected this estimate to have been presented only as a range given its uncertainty. The Department reviewed the estimates in late 2011 but included £1.5 billion efficiency savings. It has set up an efficiency programme but it cannot at this stage know how much will be saved. A new estimate for phase one is being developed, based on a clearer route and more information, including ground surveys, which the Department intends to finalise for the outline business case. The costs of the full Y-shaped network, estimated at £32.7 billion in January 2012, are understandably less certain (paragraphs 3.3 to 3.6 and 3.8).

18 There is currently no cross-government mechanism to agree in-principle funding for the life of the High Speed 2 programme. We estimate there is a £3.3 billion gap spread over four years (2017-18 to 2020-21) which the government will need to fill between the Department's forecast capital expenditure in the peak construction years of phase one and its budgets if these were continued at 2014-15 levels. The government has yet to decide how this will be funded although options are being considered as part of the current spending round and the 2013 Budget announced a £3 billion increase in capital spending across the whole of government in each year from 2015-16 compared to previous plans. HS2 Limited is likely to have to pay VAT, which it may not be able to reclaim. The Department has not included VAT in its published construction cost estimate. Public perception of how well the Department manages the High Speed 2 programme may be adversely affected if the estimate is increased to include VAT even though this represents an internal transfer within government rather than an additional cost (paragraphs 3.9 to 3.12).

Departmental changes

19 We are concerned about the Department's capacity to undertake this programme to a challenging timetable alongside its other business and having experienced considerable organisational change. The Department is responsible for a number of significant programmes and initiatives including the Thameslink, Crossrail, Intercity Express and restarted rail franchising programmes; reforms to how it delivers motoring services; and a review of aviation policy. The Department restructured in 2010 and is undergoing further organisational change in response to the cancellation of the InterCity West Coast franchise competition. There has been considerable turnover in departmental senior positions in the past two years (paragraphs 4.2 to 4.3).

Conclusion on value for money

20 High Speed 2 is at a very early stage of planning and development and, as such, we cannot conclude on whether the programme is likely to deliver value for money. The cost and benefit estimates in its economic case are uncertain and will change because the programme is at an early stage. Furthermore, there have been past errors in the underlying model and some key data needs to be updated. In presenting its case for investment, the Department has poorly articulated the strategic need for a transformation in rail capacity and how High Speed 2 will help rebalance economic growth. The Department and HS2 Limited have started a lot of work recently to strengthen the evidence and analysis on which the case is based. The challenging programme timetable, however, makes delivering this work difficult and increases the risks that the programme will have a weak foundation for securing and demonstrating success in the future.

Recommendations

Business case

a **The Department should prepare a complete business case for the full Y-shaped network recognising that it is developing a high-speed rail network in different phases.** The business case should clearly set out the strategic reasons and supporting evidence for building the whole network.

b **The Department and HS2 Limited should recognise explicitly the uncertainty in the economic case by quoting ranges rather than a point estimate.** The risks and uncertainty to the benefit–cost ratio have not been clearly stated.

c **The Department should routinely update data upon which it bases key assumptions and forecasts.** The Department needs to update the value of time it uses, so it is based on current travellers' salaries and carry out research to understand how business travellers use travelling time. It should model the effects of premium pricing and potential competitive responses from other operators on forecasts of passenger demand and the benefit–cost ratio, drawing on work that HS2 Limited is carrying out.

d **The Department needs to define and, if possible, quantify how High Speed 2 will meet its strategic objective to transform regional economies by delivering growth and jobs.** Using research commissioned by HS2 Limited, this will allow the Department to understand the relationship between objectives and costs so that it can analyse the impact of investment and cost changes on expected benefits.

Programme management

e **The Department should ensure that it has sufficient time to develop the programme, including to respond to unexpected issues, and that its work is structured around the key objectives it is trying to achieve:**

- It should develop a realistic timetable for the hybrid bill, which includes allowances for unforeseen or uncontrollable delays and builds in sufficient time for proper scrutiny and quality assurance.
- It should structure the programme's key processes and documents so they focus on meeting the programme's objectives, including achieving regional economic growth.
- The Department should set a timescale for management to respond to issues raised in assurance reports on the programme and monitor how recommendations are implemented.

Cost estimates and affordability

f **Once a mature cost estimate has been developed, the Department and HM Treasury should agree long-term, in-principle, funding for High Speed 2.** Work by Infrastructure UK identified the uncertainty of funding for the UK construction 'pipeline' as a contributor to increased UK infrastructure costs. The Department should also clarify the VAT position for the programme with HS2 Limited and HM Revenue & Customs.