



HOUSE OF COMMONS  
Committee of Public Accounts  
HS2 Euston  
Sixty-Third Report of Session 2022-23  
HC 1004  
**Analysis and commentary**

**Abstract**

Analysis and commentary by Lord Berkeley and Michael Byng of the contents of PAC Report HC 1004 with suggestions for the future progress of the Euston station project and the HS2 scheme in its entirety and their completion

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**31<sup>st</sup> July 2023**

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## Foreword

### House of Commons Committee of Public Accounts – HS2 Euston Sixty-Third Report of Session 2022-23; HC 1004

#### Analysis and commentary

To produce our analysis and commentary of the report, it is necessary to reconcile its findings with the scope of works and estimate of expenses placed by HS2 Limited before Parliament in 2017, when the project received Royal Assent, and to the National Audit Office Report HC 1201 – London Euston and HS2 Limited, published on 27<sup>th</sup> March 2023

We believe that the House of Commons Committee of Public Accounts (PAC) was not helped by the failure of Report HC 1201 to deliver its findings in accordance with the NAO guidance “*Framework to review programmes*”<sup>1</sup>, which rendered it unable to deliver a comprehensive account of the project.

We produced our analysis and commentary of NAO Report, aligned to the NAO guidance on 18<sup>th</sup> June 2023. Copies of it are available to complement this analysis and commentary.

In addition, the references to cost variations in report HC 1004 are wholly based on evidence given by the Department for Transport (DfT) and HS2 Limited, which was not linked to or reconciled with the Estimates of Expenses or independent estimates of cost available in the public domain at the time of Royal Assent for Phase I of the HS2 project, 23<sup>rd</sup> February 2017.

We have, therefore, included in the appendices to this analysis and commentary details of these costs, which should be read in conjunction with it.

Our analysis and commentary are set out and follows the format of PAC report HC 1004.

Missed opportunities to make progress.

This document sets out our comments on the House of Commons Public Accounts Committee Report HC1004 on the Euston station parts of HS2, which criticises both the Department for Transport and HS2 Ltd for the delays and uncertainties as well as the cost overruns.

We set out the cost history of this part of the project from the date of Royal Assent of Phase I (including Euston) onwards and note that, eight years later, there is no safe and buildable solution. The development of Euston, as proposed by DfT and HS2 Limited, and which received Royal Assent, is undeliverable not in the least because of the impossibility of creating the tunnelled access and throat required by HS2 Limited, from Old Oak Common. Beneath Park Village East.

This analysis and commentary, which includes suggestions to resolve the impasse and minimise further delay to the project, takes account of the alternative design solutions for the train shed offered by Sam Price in his “Euston Express” petition to the House of Lords, HoL-00691<sup>[1]</sup> and for

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<sup>1</sup> National Audit Office, *Framework to Review programmes*, April 2021

<sup>[1]</sup> “Euston Express”, the title of petition HoL-00691, submitted by Sam Price, a resident of the London Borough of Camden, and heard by the House of Lords Select committee on 11<sup>th</sup> October 2016.

the various Oversight Development (OSD) schemes of which DfT and HS2 Limited have been aware since 2016.

The alternative proposal creates a revised station throat to a tunnelled access for HS2 trains from Old Oak Common at Queens Park. Mr. Price's proposal was viewed favourably by HS2 Limited at the Hearing of his petition on 11<sup>th</sup> October 2016.

We also comment on the overall cost estimates of the complete HS2 project, since these have also been subject to a failure by the NAO and PAC to consider the clear cost evidence trail that has been available to but ignored by DfT and HS2 since the first Royal Assent.

This report makes no recommendations on the need for the exact numbers of platforms at Euston or the relationship with the services proposed to meet the future passenger demand, or whether Old Oak Common could be an alternative terminus for a smaller number of trains.

Our conclusion remains that a buildable station could have been accepted and started eight years ago. It could still be built, but it will take time to develop and obtain the necessary permissions. It is for others to decide whether the cost and the long-term disruption is justified.

We urge the PAC and the NAO to investigate in much greater detail using all available evidence the cost and other uncertainties that we set out in this Report, on a project which has so far resulted in a cost escalation of almost 800% (from £23bn to an estimated £182bn) and to reflect on lessons to be learned from such a disastrous taxpayer funded project.

Requests for further information

We welcome any questions on the content of our analysis and commentary or requests for further information.

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**31<sup>st</sup> July 2023**

## HS2 Limited Phase I and its Estimated Cost Base

### Introduction and guidance notes

Estimated costs at 23<sup>rd</sup> February 2017 – Royal Assent - £23.50 bn.

The estimate of costs for Phase I placed before Parliament on which Royal Assent was granted, was £23.50 bn. This estimate included all works at Euston Station to accommodate all traffic from the original HS2 proposal, including traffic from Birmingham, Manchester and Leeds.

Although no detailed estimate was placed before Parliament, a summary of costs was presented to Lord Ahmad of Wimbledon, then a Government Minister in the House of Lords, at a meeting held on 18<sup>th</sup> January 2017.

The meeting was attended by Lord Berkeley and Michael Byng, who were given a copy of the summary of costs.

The estimate summary was presented to the meeting by Mr. Michael Hurn, then HS2 Phase I sponsor at the DfT and John Stretch, representing HS2 Limited. The estimated cost totalled £17.577 bn, to which was added a contingency allowance of 35% making the total £23.63 bn.

A copy of the estimate summary is shown at Appendix A to this analysis and commentary.

The estimate of costs for Phase I, on which Royal Assent was received was £23.50 bn. This total was included in the overall estimate of costs for the original HS2 network, £55.70 bn, confirmed by the then Rail Minister, Nus Ghani MP, in her statement to the House of Commons on 15<sup>th</sup> July 2019.

All costs are at 4<sup>th</sup> Quarter 2015 prices.

Estimated costs at 11<sup>th</sup> February 2020 – The Oakervee Review - £54.91 bn

In August 2019, shortly after Ms. Ghani's statement to the House of Commons, the then Chairman of HS2 Limited, Mr. Allan Cook, produced his "Stocktake Report" which stated that the cost of the entire project had increased to £88 bn, at 4<sup>th</sup> Quarter 2015 prices.

In September 2019, the then Prime Minister, Rt Hon Boris Johnson MP. commissioned Mr. Douglas Oakervee to review the project and report on its progress, delivery dated and overall cost.

During the Oakervee Review DfT commissioned KPMG to reconcile the figures contained in the "Stocktake Report" with the scope of the works required to complete each phase of the project.

KPMG, on behalf of DfT were unable to reconcile the costs stated in the "Stocktake Report". KPMG was hindered in its reconciliation as there was no evidence offered by HS2 Limited explaining how the budget was set.<sup>2</sup>

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<sup>2</sup> At the HS2 Costs Roundtable on 2<sup>nd</sup> October 2019, Messrs Bradley [formerly Chief Financial Officer, HS2 Limited], Dorans [formerly Project Controls Director, HS2 Limited] and Smart [Director HS2 Limited] were unable or unwilling to provide Mr. Oakervee with a copy of any HS2 Limited internal estimates for the project.



Working with Michael Byng, KPMG reached the conclusion that a realistic estimate of cost for Phase I, including the works required at Euston station was £54.91 bn.

A copy of the estimate summary, prepared by KPMG, is shown at Appendix B to this analysis and commentary.

### Scope of works at Euston station.

The development of Euston, as proposed by DfT and HS2 Limited, which received Royal Assent, is undeliverable not in the least because of the impossibility of creating the tunnelled access and throat required by HS2 Limited, from Old Oak Common. Beneath Park Village East.

This analysis and commentary, which includes suggestions to resolve the impasse and minimise further delay to the project, takes account of the alternative design solutions for the train shed offered by Sam Price in his “Euston Express” petition to the House of Lords, HoL-00691<sup>3</sup> and for the various proposals for the Oversight Development (OSD).

The alternative proposal creates a revised station throat to a tunnelled access for HS2 trains from Old Oak Common at Queens Park. Mr. Price’s proposal was viewed favourably by HS2 Limited at the Hearing of his petition on 11<sup>th</sup> October 2016.

The proposals prepared, in detail for the OSD have been known to DfT and HS2 Limited, as they have been repeatedly referred to the Compulsory Purchase proceedings for the HS2 project, of properties adjacent to the station.

### Cost base discounting by DfT

At no time during the past 8 (eight) years have DfT or HS2 Limited produced or published a structured estimate to support figures given to Parliament or to PAC and other committees.

The closest DfT has come to providing such information followed KPMG reconciliation of the then Chairman’s Stocktake report which concluded that the estimated cost, at 4<sup>th</sup> Quarter 2015 was £54.91 bn.<sup>4</sup>

The Estimate of expenses given to Parliament for Royal Assent is £23.50 bn, which is 42,80% of the realistic estimate of cost as verified independently at the time. No explanation has been given of why the costs were discounted nor who authorised the decision.

The cost of the works at Euston are included in the Estimate of expenses, approved by Parliament, and are similarly discounted.

In recent appearances before parliamentary committees, the DfT has referred to a budget of £44.6 bn<sup>5</sup> but has either been unable or unwilling to provide a build up to support its calculation.

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<sup>3</sup> “Euston Express”, the title of petition HoL-00691, submitted by Sam Price, a resident of the London Borough of Camden, and heard by the House of Lords Select committee on 11<sup>th</sup> October 2016.

<sup>4</sup> During 2020 and 2021, “Whistleblowers” within HS2 Limited supply chain provided evidence that HS2 believed that the cost of Phase 1 at the time of Royal Assent, 23<sup>rd</sup> February 2017, was £47.80 bn, exclusive of providing traction power generating source, £3 bn, and the additional foundation works required for the OSD at Euston, £2.2 bn, making the total £53 bn.

## Cost basis for comparison purposes

For accurate comparison, this analysis and commentary uses the following figures for comparison purposes.

Item	Description	KPMG review/£ bn	DfT discount/%	Royal Assent/£ bn
01	HS2 Phase I - total project cost	54.91	42.80%	<b>23.50</b>
02	Euston Station - Redevelopment	9.11	42.80%	<b>3.90</b>

For any review of the HS2 Project, in part or in whole, the comparison of cost variance should be made against the costs approved by Parliament. For that reason, the Royal Assent costs, as reconciled, are used throughout this analysis and commentary.

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<sup>5</sup> Refer to evidence given to the PAC Hearing on Monday 24<sup>th</sup> April 2023 by Dame Bernadette Kelly KCB, Permanent Secretary, Department for Transport.

## HS2 Euston Sixty-Third Report of Session 2022-23; HC 1004 Summary

The Summary states, correctly, that almost being eight years into planning the High Speed 2 station at Euston, the Department (DfT) does not know what it is trying to achieve.

However, the summary fails to:-

- Point out that the original budget for the station was not £2.6 bn, as claimed by DfT and HS2 nor does it draw attention to the discount in costs applied to the HS2 Phase I Estimate of expenses, including the cost of Euston station development.
- Challenge the assertions made by DfT and HS2 that the design solution and escalating costs arise from matters that were unknown at Royal Assent; these assertions are manifestly untrue.
- Require DfT and HS2 to present and reconcile their claims for additional costs with the work done during The Oakervee Review.
- Acknowledge there are workable and affordable design solutions available to DfT and HS2 Limited to resolve the apparent impasse at Euston.
- Point out that there has been a great deal of research and development work into railway engineering costs, led by Network Rail Limited, to which HS2 was party, which could have alleviated many of these problems, had they been applied correctly.
- Fails to draw the public's attention to the lack of purpose of the wider HS2 programme because Euston is an unaffordable and unattainable destination.

The problems at Euston are having a major impact of the cost and dates for delivery of the HS2 project, which, we believe could be mitigated or removed, had the PAC taken evidence from third parties, who have credible alternative solution to the station redevelopment. These alternative cover the complete redevelopment of the station, providing facilities for HS2 and Network Rail trains as well as providing the foundations for the crash deck over the stations and the foundations for the planned Oversight Development (OSD)

The PAC has missed a major opportunity to correct Parliament's image of the HS2 project, as presented in January 2017, prior to Royal Assent, as well as to make recommendations for credible alternative proposal, which would remove the current impasse.

## **Introduction**

### **Euston station – purpose**

The introduction sets out, correctly, the purpose of Euston Station within the proposed HS2 network, yet the Report fails to consider the effects of the failure at Euston by DfT and HS2 on the entire project.

The failure of the Euston development has major adverse effect on the claimed business case for the HS2 project and its purpose. The Report is generally silent on these failures and the future if any of the project.

### **Euston and the Oakervee Review**

The Oakervee Review, in effect, threw DfT and HS2 a lifeline, which they have failed to grasp.

Claims by DfT and HS2 that unforeseen problems have frustrated the establishment of a clear design for Euston station and escalated costs are unfounded. All the issues relating to design were known prior to Royal Assent for HS2 Phase I and the Oakervee Review reminded DfT and HS2 of them.

In addition, through the cost reconciliation work carried out for the Oakervee Review, gave DfT and HS2 a clear steer on the real costs of the project, at 4<sup>th</sup> Quarter 2015 prices, yet PAC allowed DfT and HS2, during the hearing, to quote estimated costs for the entire scheme and for Euston in particular that are impossible to reconcile with the real costs.

## Conclusions and recommendations

### **1. Despite spending over eight years on planning and designing the HS2 Euston station, the Department still does not know what it is trying to achieve with the station.**

- All the requirements of the station were known by DfT and HS2 Limited prior to Royal Assent for HS2 Phase 1.
- DfT has been aware since 2016 that its proposals for the station based on the location of the HS2 access tunnel portal from Old Oak Common are impracticable and unbuildable.
- The additional cost of the works, as included in Estimate of Expense for Phase 1 is £5.21 bn, at 4<sup>th</sup> Quarter 2015 prices, £6.79 bn at 4<sup>th</sup> Quarter 2022 prices.

Design proposals for Euston station to date, have been constrained by the position of the tunnelled entry to the station throat from Old Oak Common. Although HS2 Limited was advised in October 2016 that its proposal to create the tunnel portal beneath Park Village East was impracticable and probably impossible, it has pursued its proposal for eight years without being able to produce a buildable, safe and affordable solution. If HS2 Limited to create the terminus it requires at Euston, it must agree the location of constructable tunnel portals further away from the station throat, thus providing the construction of a workable station.

The ultimate design for the station at Euston, if it is to support an over site development (OSD), requires a crash deck for that development. The crash deck is required over the entire station, Network Rail and HS2, so the entire station must be redeveloped.

In the design, access must be provided to London Underground, the Victoria and Northern lines, the sub-surface lines of the Metropolitan, District and Circle lines via Euston Square Station<sup>6</sup> and to Crossrail 2.

The engineering problems to support the crash deck and to provide these accessways are compounded by the absence of suitable foundations beneath the existing station to support the crash deck. When Euston was redeveloped between 1959 and 1967, successive Governments prevented the then British Rail from building adequate foundations for an OSD to, in 1959 prevent development by British Railways competing with similar commercial developments elsewhere in London, and in 1964, to preclude any further office building in London. This is confirmed by the British Railways Officer in charge of the redevelopment.<sup>7</sup>

The cost of providing adequate foundations within the constraints of the existing station, underground, sub-surface and Crossrail lines is estimate at 4<sup>th</sup> Quarter 2015 prices, to be £2.2 bn. The additional foundation work was excluded from the scope of HS2 Limited contract in the Enabling Act and should be added to the estimate of cost of the station development.

During the Oakervee Review, DfT, advised by KPMG, which reconciled HS2 Limited estimate for Euston Station was £5.1 bn, exclusive of the cost of the OSD above the crash deck and land take. The costs were at 4<sup>th</sup> Quarter 2015 prices not 4<sup>th</sup> Quarter 2019 prices.

<sup>6</sup> Michael Hurn, then Project Sponsor at the DfT and Professor Andrew MacNaughton, HS2 Limited; stated in a meeting Sam Price, House of Lords petitioner, petition HoL-00691, Friday 16<sup>th</sup> December 2016

<sup>7</sup> "Man of the Rail", A J Pearson, George Allen & Unwin, published 1967, page 194.

The cost of land take (land acquisition) required by the scheme approved by Parliament in January 2017 for the HS2 project at Euston, is £1.81 bn. Notwithstanding the non-disclosure agreements (NDA) imposed by DfT and HS2 Limited on owners whose land has been acquired, these costs have been very considerably exceeded but for the purpose of cost comparison, it is included in the total estimates cost the Euston station development, which is £9.11 bn at 4<sup>th</sup> Quarter 2015 prices.

The estimated cost includes both HS2 Limited requirements and those of Network Rail, with all accesses to underground, sub-surface lines and Crossrail 2 as well as providing the crash deck for the future OSD.

All these requirements were known prior to the Royal Assent for Phase I so it is difficult to reconcile the DfT statement that the additional cost is due to the need to incorporate all the stakeholders' requirements.

The comparable amount included in the Estimate of Expenses included with the Hybrid Bill for Phase I of the project, which received Royal Assent is £3.90 bn.

The estimated increased cost of the Euston station development, excluding the OSD above the crash deck is £5.21 bn at 4<sup>th</sup> Quarter 2015 prices. With inflation to the end of 2022, using the All-Construction Indices" published by the Office for National Statistics (ONS) for 4<sup>th</sup> Quarter 2022, the increased cost is £6.79 bn.

### **Recommendation 1:**

The DfT accept the impracticality and impossibility of developing the station with the HS2 tunnelled access to its throat in its current position beneath Park Village East. Having identified an alternative workable location, DfT must establish an accurate development budget for the entire station, including the provision of the crash deck by confirming a final design and business case for the station; without these elements, there is no purpose to continuing the HS2 Limited involvement in the project.

## **2. The £2.6 billion budget set in 2020 provided to be completely unrealistic for what the Department wanted to deliver.**

- The figures offered as evidence by DfT for HS2 Phase I and for the costs of redeveloping Euston station, excluding the OSD cannot be reconciled with Estimate of expense approved by Parliament in 2017.
- The April 2020 budget of £2.2 bn does not cover all the works and costs at Euston required for its comprehensive redevelopment.
- The number of platforms required for HS2 services at Euston cannot be defined until the ultimate service pattern is fixed.
- The ultimate layout of the platforms and the development cannot be fixed until the location of the access tunnel for trains from Old Oak Common is identified and can be built safely and affordably within the funds available.

No details have been provided of the early estimated costs of £3 bn, the April 2020 budget of £2.6 bn, the estimate for a 11-platform station of £4.4 bn or the estimate for a 10-platform station of £4.8 bn.

None of these estimates has been reconciled to the work carried out for the Oakervee Review by KPMG or to the costs included in the Estimate of expense presented to Parliament in February 2017.

All the works required to redevelop Euston, including the foundation for the OSD and the serious difficulties arising from a tunnelled approach to the station under Park Village East, have been known to DfT and HS2 Limited.

There is no justification for the programme and cost variations arising from these issues.

### **Recommendation 2:**

The Department must set out clear comprehensive estimates of costs for the work at Euston, supporting by designs that are approved for construction and can be built safely and affordably. Until this information is available, work at Euston and on the remainder of the HS2 Phase I project should be suspended forthwith.

### **3. The Department does not yet know the costs and impacts of pausing construction.**

1. The DfT has not produced a scheme for the comprehensive development of Euston which meets the scope set out in the enabling Act for Phase I of HS2.
2. If DfT has not produced a comprehensive scheme for the project, then it cannot estimate the cost of its completion.
3. In the absence of a comprehensive scheme, the DfT has no idea of the percentage of works properly completed to date.
4. Without a realistic estimate of total cost, DfT cannot produce either a credible “Cost Value Comparison”<sup>8</sup> or an estimate of “Cost to Complete”<sup>9</sup>, including any costs of suspension (pausing) or determination of contracts in supply chain.

DfT and HS2 Limited are unlikely to provide any detailed estimates for the works at Euston because they have not yet decided the volume of traffic from the HS2 system, which they will need to accommodate.

Neither has been able to furnish an estimate for Phase I of the project:-

- When they were asked for one during the petitioning process leading to Royal Assent in 2017.
- In the Chairman’s Stocktake Report in 2019.
- For the Oakervee Review, for which KPMG was instructed by DfT to reconcile the suggested costs in it for the entire project with the scope of the works.

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<sup>8</sup> “Cost Value Comparisons” are produced, normally, at monthly intervals with construction projects to monitor the amount moneys expended against the contractual deliverables.

<sup>9</sup> “Costs to Complete” assessments are normally carried out by contractors to ensure that they have sufficient income from their contracts left to discharge their obligations. These assessments often reveal previously hidden variations to contracts, which increase the ultimate contract values.

The only conclusion available is that is either no structured estimate, supporting the approved costs on which moneys are being expended or, if there is one, its total exceeds the moneys for the project approved by Parliament.

### **Recommendation 3:**

#### ***For the entire HS2 Phase I project***

DfT and HS2 must produce a structured estimate for the entire HS2 Phase I project in an industry standard format, which is acceptable to the designated regulatory bodies, RICS<sup>10</sup> and ICE<sup>11</sup>. The estimate should comply in all respects with RICS practice statement – Cost Prediction – RICS professional statement, global – 1<sup>st</sup> edition - November 2020 Effective from 1 July 2021.

Having produced the structured estimate, DfT and HS2 must, using it as a basis, produce a valuation of works completed to date 30<sup>th</sup> June 2023 (2<sup>nd</sup> Quarter 2023), with a cost-value-reconciliation, comparing expenditure with the valuation.

Once completed, DfT and HS2 must produce an assessment of the costs to complete the project, with a summary comparing the outcome with the balance of the structured estimate.

#### ***For the Euston station project***

DfT and HS2 Limited must complete the process for the entire project, described above, for the Euston station project.

#### ***Basis and scope of the structured estimates***

Both estimates must be set out in summary form as illustrated on page 220 of the Rail Method of Measurement – (RMM1)<sup>12</sup>.

Both estimates must include:-

- Direct Construction Works Costs
- Indirect Construction Works Costs
- Design, Project Management and Other Project Costs
- Land acquisition, temporary and permanent including acquisition costs.
- Risk Allowance<sup>13</sup>
- Inflation Allowance<sup>14</sup>
- Taxation and Grants<sup>15</sup>

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<sup>10</sup> Royal Institution of Chartered Surveyors, 12 Great George Street, Parliament Square, London SW1P 3AD

<sup>11</sup> Institution of Civil Engineers, 1, Great George Street, Westminster, London SW1 3AA

<sup>12</sup> RMM1 – “Rail Method of Measurement Order of Cost Estimating, Cost Planning and Detailed measurement for Rail Infrastructure Works – RMM1 published by Network Rail, 1<sup>st</sup> Industry Edition – 1<sup>st</sup> July 2018

<sup>13</sup> Risk allowance shall include Quantitative Cost Risk Assessment (QCRA) and any other risk allowances including Optimum Bias allowances.

<sup>14</sup> Inflation allowance shall include Exceptional Inflation applicable to the HS2 project exclusively; RMM1 component 5.01.01.02.02

<sup>15</sup> The project's entitlement to Tax Allowances and Grants, including Capital Allowances on Plant and Equipment and Grants for Protected Buildings and Structures; RMM1 – Group Element 6.01 – Taxation and Grants.



#### *Inflation base date*

Both estimates must be indexed and linked to the ONS “All Construction Index” at 30<sup>th</sup> June 2023 (2<sup>nd</sup> Quarter 2023).

#### **4. The Department and HM Treasury have not reached a clear understanding about how they would manage high levels of inflation on the HS2 programme, including accessing Government-held contingency.**

1. In the estimate, reconciled by KPMG for DfT, in the Oakervee Review, there is no stated allowance for Tender Inflation as defined by RMMI Component 5.01.01.01, “Date of Commencement to Mid-point of construction Period” or defined by Component 5.01.01.02, “Inflation: Delays in Procurement Programme”; however in the costs of the elemental works, there is an allowance for Construction Inflation as defined in RMMI Component 5.01.02.02, “Exceptional Inflation”<sup>16</sup> for the exceptional demands made by the project on the limited design and construction resources available in the UK, post 2016.
2. DfT and HS2 should have allowed in the Estimate of expense, placed before Parliament prior to Royal Assent, for the effects of the scarcity of labour for design and construction, post Brexit, 23<sup>rd</sup> June 2016. Prior to that date 40% of all on-site labour in the UK came from the EU, since the referendum, that figure has fallen by 25%.<sup>17</sup>
3. Until DfT and HS2 have a robust structured estimate, they cannot offer a credible strategy to HM Treasury for the management of inflation.

#### **Recommendation 4a:**

DfT must agree with HS2 Limited and the project supply chain a mechanism within contracts to manage inflation. To manage the process, the optimum method is to adjust inflation using a price index formula, such as NEDO or Baxter, which is linked to the measurement necessary to produce the structured estimate required to address the other Conclusions and recommendations in the PAC report.

The mechanism must include the agreed terms of payment for inflation, ascertained from indexing measurement and agreed with HM Treasury.

#### **Recommendation 4b:**

DfT and HS2 Limited must first deliver its structured estimate, which must be based on a realistic works programme, from which it can forecast inflation and agree the total expenditure with HM Treasury.

HM Treasury must, using the structured estimate, estimate of inflation and a realistic works programme, confirm its agreement to the continued expenditure or, if there is uncertainty about DfT and HS2 ability to deliver, or a shortage of available funds, direct DfT and HS2 to postpone the works in whole or in part or direct that the works completed to date be incorporated, where possible, into the Network Rail system.

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<sup>16</sup> Exceptional inflation: The additional costs of items or services that are in short supply or subject abnormal market conditions shall be classed as exceptional inflation.

<sup>17</sup> Construction News, 22<sup>nd</sup> January 2021.

**Recommendation 4c:**

DfT and HS2 must include in the structure estimate of costs for HS2 Phase I, including the Euston project, include an allowance for risk, as defined earlier. The proportional ownership of this allowance must then be agreed between DfT and HM Treasury together with how and what it may be drawn down.

**5. The Department's reports to Parliament on the HS2 Programme did not reflect the significant level of uncertainty in its estimated cost of Euston station**

- All the issues, which DfT and HS2 claim to be uncertainties, affecting the estimate of cost were known prior to Royal Assent in 2017.
- DfT and HS2 have been unable or unwilling to share the estimate supporting the Estimate of expense presented to Parliament in 2017, preferring to publish to a Government Minister, Lord Ahmad of Wimbledon on 18<sup>th</sup> January 2017, a summary of the estimate purporting to support the Estimate of expense; the total was £23.50 bn at 4<sup>th</sup> Quarter 2015 prices.
- In August 2019, HS2, via its Chairman's Stocktake Report suggested the cost of the entire project was £88 bn. The project was then referred to the Oakervee Review.
- During the Oakervee Review, DfT appointed KPMG to reconcile the Stocktake Report with the scope of the works and the independent assessment of cost; In the absence of any structured estimate for the project from HS2, KPMG reconciled the cost of Phase I of the project to £54.91 bn, at 4<sup>th</sup> Quarter 2015 prices, of which the cost of the works at Euston were £9.11 bn.
- Notwithstanding detailed knowledge from 2015 onwards of all the issues at Euston, including the criticality of the position of the tunnel portals and the impossibility of building them as proposed, DfT and HS2 Limited have never produced a structure estimate, with which they can manage change and keep Parliament informed of the cost of the project at Euston.

**Recommendation 5a:**

The Department, supported by HS2, must provide a structured estimate to support its estimate of cost for the works at Euston.

The estimate must form part of an estimate for the entire HS2 Phase I project.

The estimate must be reconciled to the Estimate of expenses placed before Parliament before Royal Assent with a reconciliation of the variations in cost.

**Recommendation 5b:**

DfT and HS2 must provide a structured estimate to support its estimate of cost for the works at Euston and explain to the PAC and the Transport Select Committee (TSC) why it has failed to provide and estimate previously to Parliament and to all committees and to the Oakervee Review.

DfT and HS2 must provide the report as soon as possible before any more money is spent on the project.

All estimate totals should be stated at 4<sup>th</sup> Quarter 2015 prices and reconciled to the original expenditure approved by Parliament.

## **6. The Department has not yet learned from managing major rail programmes.**

- DfT and HS2 have shown a strong reluctance to read and understand the lessons learned from previous major railway projects such as the East Coast main Line electrification delivered successfully in the earlier 1990's. The ECML Project Manager, Donald Heath, is available for consultation as are all his papers, which are as relevant today as they were at the time of the ECML project delivery.
- Current projects are being led by construction-oriented consultants who do appear to understand that to build a railway is to deliver an operating system. The result is that this project, and other others, suffer from “silo management”, separate teams working on it with very little interaction between them.
- During the Oakervee Review assistance was offered to DfT and HS2 from experienced professional railway operators, engineers and surveyors, who could provide the level of integrated experience that it is missing. The experience included personnel who had worked on the King's Cross development.
- Without a structured estimate, linked to an accurate scope of works for Euston station, it is difficult to see how DfT and HS2 can learn from it to improve delivery at Birmingham Interchange, Birmingham Curzon or Manchester Piccadilly stations.
- The Kings Cross development was delivered by the private sector under a “design and build” contract with minimal public sector involvement.

### **Recommendation 6:**

To demonstrate that they have learnt lessons from past rail projects, DfT and HS2 must produce a structured estimate of cost for the works at Euston, which should be accompanied by a detailed written scope of works.

The estimate should be the control documents from which all change management is carried out. All changes must include the origin of the need for the change and those responsible for the change.

DfT and HS2 must provide structured estimates with a detailed written scope of works for each of the stations under review, Birmingham Interchange, Birmingham Curzon and Manchester Piccadilly.

All estimates must be set out in the form of RMM1 (*ibid*) to allow direct comparison between the costs of each station. The use of the same cost structure will confirm or reveal if best practice is being followed.

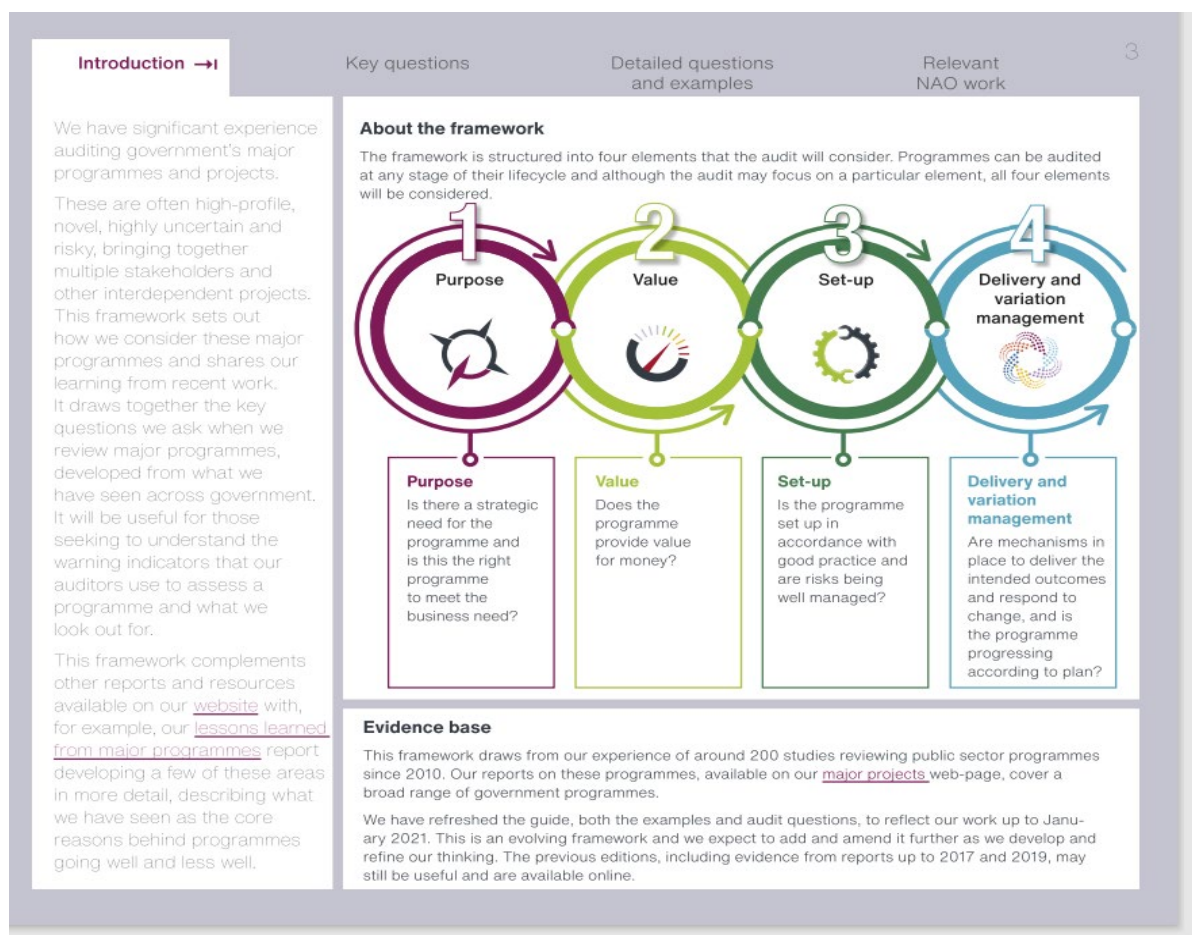
DfT and HS2 must reflect on their performance to date and assess their competence to continue with the development at Euston station.

## I Progress at Euston

### Comptroller and Auditor General report HC 1201, High Speed Two Euston

The report did not offer the PAC clear advice on the state of the Euston station project, as it did not follow its own guidance notes.

On page 40 of The Report, under the heading, **“Developing our audit questions”**, states that “In developing our audit questions, we draw on our April 2021 guidance, **“Framework to review programmes”<sup>18</sup>**, which includes in its introduction, the framework structure, which is reproduced below.



The findings in the Report, pages 7 – 12 are neither defined by the elements shown above nor do the recommendations address the shortcoming by relating them to the elements. The report does not provide the PAC or the public with the guidance to consider the situation at Euston station.

In paragraphs 1 and 2 of the report defines the purpose of Euston station as *“Euston will be the London terminus for HS2, a new high-speed, high capacity railway between London, the West Midlands, and the north of England”*. It omits to mention that DfT and HS2 have failed, after eight years, to create a

<sup>18</sup> National Audit Office, *Framework to Review programmes*, April 2021

safe, buildable tunnelled access for HS2 services from Old Oak Common, so the primary function of the station cannot be achieved.

Notwithstanding the recommendations of the Oakervee Review that the designs for the station and the approach was not satisfactory, neither DfT nor HS2 has addressed the problems caused to the design of the station layout thus rendering any work on the design of the station useless.

Why DfT should believe that a pause in new construction works will allow it and HS2 to develop an affordable and deliverable design for the station is difficult to understand. In the eight years between 2015 and 2023, although they have been fully aware of the problems at Euston, including the impossibility of gaining access for HS2 from the proposed tunnel position, DfT and HS2 have failed to deliver a credible design.

### Station design

DfT nor HS2 provided a structured estimate for the cost of HS2 Phase I, including Euston station, in the Estimate of expenses presented to Parliament with the Hybrid Bill in 2017. The Estimate of expense totalled £23.50 bn<sup>19</sup>, with the amount allowed for Euston station being £3.90 bn.

All the requirements for the station development were known prior to Royal Assent and were included in the independent assessment of cost published in January 2017., which was £9.11 bn. The effect of DfT and HS2 insistence on the lower costs is to discount the realistic cost of HS2 Phase I and Euston station by 57.20%.

It is clearly impossible to deliver the station within the lower figure, making all the efforts since Royal Assent and post Oakervee Review futile. It is of little surprise that so much money spent on the design and construction works should be of no value or importance.

The current independent estimate of cost for the works at Euston, including a safe, buildable tunnelled access for HS2, away from Park Village East, suggests that the total will be £9.11 bn, at 4<sup>th</sup> Quarter 2015 prices.

All the requirements described by DfT and HS2 as contributing to the high than planned cost was known to both parties prior to Royal Assent. The delivery problems, brought about by the need for additional monies, arises solely from the heavily discounted, and unrealistic, amount included in the Estimate of expenses with the Hybrid Bill.

The asked DfT what a reduced design for the station might look like. In its response DfT that it might have to consider cutting back the OSD. The reduction in design relates directly to the artificially discounted budget. There were and still are solutions to the design of Euston station for all train services, Network Rail and HS2, and the OSD, these were shown in the “Euston Express” petitioned alternative and in other schemes prepared for the OSD.

The cost optimisation process referred to by DfT is not necessary as all the passenger benefits as well as the wider benefits of the scheme were known prior to Royal Assent.

### Budget and cost estimates

The Phase One cost, at 4<sup>th</sup> Quarter 2015 prices, included in the Estimate of expense is £23.50 bn. There is no supporting structured estimate for the budget of £44.6 bn.

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<sup>19</sup> Refer to the Foreword to this report, page 5.

There are detailed independent assessments of cost available to DfT and HS2 for the Euston station, to which they have had access and have ignored.<sup>20</sup>

The challenges caused by the budget for Phase One also derive from the artificially discounted Estimate of expenses for the project included with the Hybrid Bill.

Based on evidence provided by “Whistleblowers” within HS2 Limited and the independently assessed cost submitted with House of Lords petition HoL-00691, £2.6 bn was never a realistic cost for the station development.

The costs were always higher, In the Estimate of expense included with the Hybrid Bill, the heavily discounted costs were £3.90 bn. The cost of the station, including all the requirements known prior to Royal Assent, at 4<sup>th</sup> Quarter 2015 prices, is £9.11 bn.

### **The costs and impacts of pausing construction.**

In the absence of a structured estimate neither DfT nor HS2 can calculate the cost of pausing construction. When they are available, there needs to be two exercises carried out to determine the financial position of the project, a “cost-value calculation” and a “cost to complete” calculation. Only then will DfT and HS2 be able to understand its position.

To these costs, the costs of demobilising and remobilising the project and the cost of winding up the works and keeping it secure whilst vacant, need to be added. These costs are unlikely to be less than £300 million at current prices.

The impact on local businesses and the inhabitants of Camden are well documented, all that they want is a programme to end the works at Euston and to return the area to some normality, see later.

The effect of pausing HS2 on the businesses in its supply chain is considerable but can be mitigated or avoided. The supply chain is extremely nervous of the future of the project as it sees it as the only major source of works for the next decade. The worries are exacerbated by the even increasing cost overrun of the project and the emerging engineering difficulties along the routes which make the project's future uncertain.

DfT can provide projects on which to deploy the contractors in the HS2 supply by bringing forward major regional projects on the Network Rail system, which will provide guaranteed replacement works whilst adding to the Government policy of levelling. Some of these projects are listed in Appendix C.

Contractual claims from the contractors in the supply chain are in the offing due to the uncertainty referred to above. These putative claims are for suspension, postponement and termination of the works they currently have. The cost of restarting the works will include making good earthworks and temporary works, which have deteriorated during the period of suspension and the additional costs of renegotiated contract which will be considerably higher than those in place.

The London Borough of Camden<sup>21</sup> and Drummond Street traders<sup>22</sup> want the development at Euston to be completed, even if the HS2 project is abandoned, as quickly as possible. They are not prepared to wait a further two years for HS2 to, possibly, find a solution to its problems. They have been witing

<sup>20</sup> Information provided by House of Lords Petition HoL-00691 and Euston Express (GP) Limited

<sup>21</sup> Published written evidence London Borough of Camden (HS20006)

<sup>22</sup> Published written evidence Drummond Street Traders (HS20002) and (HS20007)



since 2015 for solutions promised by DfT and HS2, which have been aware of the problems with the development of the station without identifying an affordable safe solution.

There is an affordable safe solution at hand, it was outlined in petition HoL-00691, Sam Price, heard before the House of Lords Select Committee on 11<sup>th</sup> October 2016 and shown in other schemes prepared for the OSD.

## 2 Managing the wider HS2 programme.

### Managing high inflation and contingency

A large proportion of the inflation, which DfT is having to manage is caused directly because of the HS2 project. It was foreseen in independent determinations of cost in 2016/7. As an element of cost, it was separately identified in the RMMI suite at Component 5.01.02.02, "Exceptional Inflation".

This proportion of the inflation, now faced, is included, inter alia, in the reconciliation of HS2 Phase I project costs, £54.91 bn, included in Appendix B.

Acceptance by DfT of the inadequacy of the budgets frequently quoted by The Permanent Secretary of the Department will go a long way to robust evaluations of the prospects for the project, e.g., to continue it, after postponement of sections or to cancel it.

The budgets, now set, £44.60 bn for Phase I, are inaccurate and should be revised to ensure that future discussions and decision are based on sound information. Value for money is inconsistent with slow downs in work flow, as has been proved with the delays to the project since 2017.

The statement that it had no expectation that the contingency would be need is disingenuous, unless it believes that the allowance for risk, included with the Estimate of expenses and KPMG reconciliation of cost prepared for the Oakervee Review was adequate. It is difficult to reconcile this view with the apparent ignorance of the KPMG total, £54.91 bn, with the frequently quoted budget of £44.60 bn.

### Reporting to Parliament

The lack of transparent is demonstrated by DfT refusal of inability to report emerging costs against the scope of the works at Euston station and the cost included in the HS2 Phase I Act, Royal Assent 23<sup>rd</sup> February 2017.

None of the issues, which DfT and HS2 have claimed have increased cost and the time required for delivery of the project were unknown at the time of Royal Assent.

The estimate of cost for the development of Euston station, included in the summary of cost at Appendix A is £3.90 bn, in the Oakervee Review reconciliation the amount included for Euston Station is £9.11 bn.

The costs reported to Parliament, £2.6 to £3.6 bn<sup>23</sup> and latterly £4.8 bn<sup>24</sup>, to various Parliamentary Committees cannot be reconciled with the costs ascertained by the Oakervee Review after its examination of the HS2 Chairman's Stocktake Report.

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<sup>23</sup> PAC Report HC 1004 page 19, paragraph 21, fifth line.

<sup>24</sup> PAC Report HC 1004 page 19, paragraph 21, first line.

DfT claim that its approach is standard for large construction projects, where this a significant unknown risk and more design work is required is disingenuous. All the major requirements for the complete redevelopment of Euston station were known in December 2016. The costs were included in the independent contemporary assessments of cost, for HS2 Phase 1, £53.6 bn at 4<sup>th</sup> Quarter 2015 prices.<sup>25</sup>

The work referred to by DfT, which was requested by PAC and the Transport Select Committee in 2023, should have been complete at Royal Assent, 23<sup>rd</sup> February 2017. The events cited, such as the local elections in 2023, have no bearing on DfT failure to provide this information.

### Learning lessons

The DfT failures in budgeting and cost estimation have been addressed by the rail industry through the publication by Network Rail of the Rail Method of Measurement (RMMI)<sup>26</sup> suite of documents, in July 2018. The rail industry, along with several others requiring accurate appraisal of construction works, is hindered by the dearth of experienced quantity surveyors and cost engineers<sup>27</sup> with adequate competencies to prepare detailed estimates for project appraisal.

Crossrail suffered from similar shortcomings to those of Network Rail, HS2 and DfT

It is very difficult from evidence given, what lessons DfT has learned from the Euston development so it follows that it is wishful thinking to believe that these lessons can be applied to HS2 Phase 2b and to the development required at Manchester Piccadilly station.

Similarly, it is difficult to believe that any lessons have been learned or applied to Birmingham Curzon station, where most of the visible work is high-cost simple civil engineering structures with little or no detailed building work on the station and its connections to adjacent transport infrastructure.

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<sup>25</sup> HS2 Phase 1 – Summary of Costs 31<sup>st</sup> December 2016, published by M H Byng and forwarded to Michael Hurn DfT, 5<sup>th</sup> January 2017

<sup>26</sup> RMMI ibid

<sup>27</sup> In August 2015, Network Rail admitted to M H Byng that of its 650 practitioners and consultants engaged on project appraisal work, less than 15% had adequate competencies. The position has worsened considerably by the subsequent need of HS2 Limited for similar staff.



## Formal minutes

There are no comments made on the Formal Minutes.

## Witnesses

### Evidence given in person.

It is unfortunate that the only evidence given in person was by officers of DfT and HS2 who are in favour of the project. No dissenting evidence was heard in person.

Had evidence been taken, in person, from parties offering credible, alternative solutions to the redevelopment of Euston station, the PAC and the public would have been made aware of the possibility of removing the impasse at the station and to mitigate the delays to the project.

### Published written evidence.

#### Drummond Street Traders (HS20002)

From an examination of the written transcripts, the PAC does not appear to have asked DfT and HS2 Limited to provide answers to questions 1 – 5 inclusive in this written evidence nor did it instruct the witnesses to provide the answers later.

#### Drummond Street Traders (HS20007)

The questions raised in document HS20002 appear in this document and are unanswered by witnesses to the hearing.

#### Hyde Heath Village Society (HS20001)

The ultimate question in the witness statements is:-

*“I look forward to the DfT confirming they have no intention of attempting to commission Phase 1 of the line in part or accepting liability to build Euston without the statutory protection of the Act.”*

There is no record of the PAC asking this question or the witnesses answering it.

#### London Borough of Camden (HS20006)

The evidence given by LBC demonstrates the need for Euston station to be completed. This goal can be achieved by accepting alternative solutions to those proposed by DfT and HS2 Limited. The PAC neither asked DfT or HS2 Limited if they had considered alternatives nor challenged them to do so.

#### Stockton, Tim (HS20004)

The statement made in this evidence is:-

*As early as 2011 in a meeting in Camden the Secretary of State for Business, Innovation and Skills Vince Cable suggested that HS2's raison d'être was as a totemic demonstration that UK PLC was capable of Grand Projects. As an exemplar HS2 has failed. As the economic case for HS2 has deteriorated so any rationale for HS2 to extend to Euston. If anything, it is now, "because Euston is there".*

There is no record of the PAC asking if this statement was current and still applied to the project or the witnesses answering it.

### **West Northamptonshire Council (HS20005)**

In the conclusion to this witness statement are three statements:-

*Judgements on infrastructure solutions must reflect not only the immediate capital cost, but also the value of benefits gained or postponed.*

*The Value for Money of the HS2 project arising from released capacity, which is crucial to West Northamptonshire residents, depends on availability of Euston station to HS2 services.*

*The absolute priority to capture the value of released capacity from the HS2 project is to enable the HS2 Phase 1 service, encompassing Birmingham, Liverpool, Glasgow and Manchester, to run to Euston at the earliest possible opportunity, even if this means completing the station later as other requirements become clear.*

There is no record of the PAC asking if these statements are correct or the witnesses addressing them.

### **Barter, William (HS20003)**

In the introduction to his evidence, although he confirms having provided services through a consultant to HS2 Limited, he does not formally declare his interest as did Nick Smith MP, a member of the PAC.

In his capacity as an advisor to DfT and HS2 Limited, Mr. Barter attended a meeting on 11<sup>th</sup> February 2016, held at the Department for Transport to discuss the detailed proposals contained in the alternative scheme for the comprehensive redevelopment of the entire Euston station offered by Mr. Sam Price, petition HoL-00691.

In the conclusion to his evidence, he states:-

*Value for Money of the HS2 project depends on availability of Euston station to HS2 services.*

*Obtaining this Value for Money in anything like a reasonable timescale requires an initial stage in which sufficient platforms for the Phase 1 HS2 service are available.*

*This staging also meets the Government's apparent objective of postponing costs that do not reap immediate benefits, by allowing additional platforms to be built later as and when the requirement is confirmed.*

*Ultimately, if its London terminus is not to constrain capacity of the whole HS2 network, 11 platforms are required for HS2 services at Euston, as this matches the capability of the HS2 core route to present 18 trains per hour to the terminus.*

There is no record of the PAC asking if these statements are correct or the witnesses addressing them.



## Appendix B

### Summary of Estimated costs at 11<sup>th</sup> February 2020 – The Oakervee Review - £54.91 bn

This is a copy of the HS2 Phase I summary of cost, as prepared by KPMG, on behalf of DfT, during the Oakervee Review, during October 2019.

The costs were prepared by reconciling the contents of the Chairman's Stocktake Report, published in August 2019, with the scope of the works.

Project Title	HS2 Phase I - London to the West Midlands				2015:Q1-Q4 conversion CPI	1.008040201	ONS Consumer Price reference tables
Date of Estimate	6th September 2019						
			MBPC Infrastructure Cost Plan				
		Base Date	Unit	Total cost Q42015	Total Cost Q1 2015	% of Total Cost Limit	
1.00	DIRECT CONSTRUCTION COSTS						
1.01	Railway Control Systems	4Q 2015	STK	4,362,954,131	4,328,154,895	7.9%	
1.02	Train Power Systems	4Q 2015	STK	4,923,350,857	4,884,081,857	9.0%	
1.03	Electric Power and Plant	4Q 2015	STK	3,394,426,071	3,367,351,885	6.2%	
1.04	Permanent Way	4Q 2015	STK	2,113,730,292	2,096,871,027	3.8%	
1.05	Operational Telecommunication Systems	4Q 2015	STK	2,230,042,128	2,212,255,152	4.1%	
1.06	Buildings and Property	4Q 2015	GIFA	7,655,454,245	7,594,393,792	13.9%	
1.07	Civil Engineering	4Q 2015	Route Km	808,218,026	801,771,621	1.5%	
1.08	Enabling Works	4Q 2015	Route Km	3,064,178,974	3,039,738,863	5.6%	
	DIRECT CONSTRUCTION COSTS (A)			28,552,354,724	28,324,619,093	52.0%	
2.00	INDIRECT CONSTRUCTION COSTS						
2.01	Preliminaries	4Q 2015	%	4,566,939,622	4,530,513,384	8.3%	
2.02	Contractor's Overheads & Profit	4Q 2015	%	2,303,936,249	2,285,559,888	4.2%	
	INDIRECT CONSTRUCTION COSTS (B)			6,870,875,871	6,816,073,272	12.5%	
	CONSTRUCTION COSTS SUBTOTAL (A + B = C)			35,423,230,595	35,140,692,365	64.5%	
3.00	PROJECT / DESIGN TEAM & OTHER PROJECT COSTS						
3.01	Design Team	4Q 2015	%	7,275,545,550	7,217,515,276	13.2%	
3.02	Project Team	4Q 2015	%	3,175,550,500	3,150,222,081	5.8%	
3.03	Other Project Costs	4Q 2015		5,810,750,555	5,764,403,592	10.6%	
	EMPLOYER'S INDIRECT COSTS (D)			16,261,846,605	16,132,140,949	29.6%	
	CONSTRUCTION, PROJECT / DESIGN TEAM & OTHER PROJECT COSTS (C + D = E)			51,685,077,201	51,272,833,315	94.1%	
4.00	RISK						
4.01	Risk Allowances	4Q 2015	%	3,225,550,000	3,199,822,782	5.9%	
	TOTAL RISK ALLOWANCE (F)			3,225,550,000	3,199,822,782	5.9%	
	COST LIMIT (EXCLUDING INFLATION) (E + F = G)			54,910,627,201	54,472,656,096	100.0%	
	OTHER ITEMS						
	Rolling Stock and Traincare Depot			Excluded			
	Schedule 4 / Asset Protection			Confirmation required			
	On Network Works			Confirmation required			
	Third Party Agreements				0		
	Transport Management				0		
	TOTAL OTHER ITEMS (H)				0		
	COST LIMIT (INCLUDING OTHER ITEMS) (G + H = J)				54,472,656,096		

The total cost of £54.91 bn is based on prices at 4<sup>th</sup> Quarter 2015.

## Appendix C

### Alternative Regional Schemes providing work to HS2 Limited Supply Chain

#### Summary of Costs

The summary of the costs of alternative schemes to those described in the IRP is shown in the table below:-

Item	Description	Sub-total £ billions	Total £ billions
<b>01</b>	<b>IRP Schemes to be continued</b>		
01.01	Northern Power House Rail - Transpennine Route Upgrade (TRU) base scope including full electrification (Option F)	6.15	
01.02	HS2 East Core Network (excluding HS2 Eastern leg) Midland Main Line and East Coast Main Line Upgrades	11.06	
	<b>Sub-total - IRP schemes to be completed</b>	<b>17.21</b>	<b>17.21</b>
<b>02</b>	<b>Alternative Schemes meeting IRP criteria</b>		
02.01	<b>National schemes</b>		
02.01.01	Cross Country enhancement and electrification; Bristol, Birmingham to Derby (connecting with MML Electrification)	<b>3.73</b>	<b>3.73</b>
02.02	<b>Northern Powerhouse Rail schemes</b>		
02.02.01	NPR; East Coast Main Line Station Upgrades and enhancement schemes	4.26	
02.02.02	NPR Manchester, Bradford and Leeds Direct Railway	9.53	
02.02.03	NPR Manchester Piccadilly Underground Station	2.25	
02.02.04	NPR Manchester Piccadilly to Manchester Victoria Tunnel; to connect with the Manchester, Bradford Leeds Direct Railway	5.25	
02.02.05	NPR Leeds Underground Station	2.55	
02.02.06	NPR Leeds to Micklefield tunnelled railway	2.80	
02.02.07	NPR Merseyside and Liverpool schemes	0.98	
02.02.08	NPR Greater Manchester and Sheffield schemes	4.18	
02.02.09	NPR Cleethorpes, Grimsby via Barnetby to Marshgate Junction, Doncaster	1.05	
02.02.10	NPR Wearside and Teesside schemes	1.80	
	<b>Sub-total - NPR schemes to be completed</b>	<b>34.65</b>	<b>34.65</b>
02.03	<b>Midlands Connect schemes</b>		

02.03.01	Midlands Connect; Birmingham Regional Electrification schemes	1.40	
02.03.02	Midlands Connect; Nottingham to Grantham, Newark and Lincoln Electrification schemes	3.61	
	<b>Sub-total - MC schemes to be completed</b>	<b>5.01</b>	<b>5.01</b>
<b>03</b>	<b>HS2 Phase I Works to be reused and incorporated into new projects</b>		
03.01	HS2 Euston Station remodelling to improve NR services; Railway Corridor between Stoneleigh and Birmingham Airport; Birmingham Curzon Station	6.74	
03.02	Northolt Junction - Aynho Junction Electrification; London Euston to Old Oak Common - New Line	17.12	
	<b>Sub-total - HS2 Phase I work repurposed</b>	<b>23.86</b>	<b>23.86</b>
<b>04</b>	<b>HS2 spent &amp; irrevocably committed; not repurposed</b>		
04.01	HS2 previous spend - sunk costs - lost	5.88	
	<b>HS2 previous spend - sunk costs - lost</b>	<b>5.88</b>	<b>5.88</b>
<b>05</b>	<b>Strategic Freight Route – Felixstowe to Nuneaton (F2N)</b>		
05.01	Felixstowe to Leicester; completion of non-electrified sections	3.64	
	<b>Strategic Freight Route – Felixstowe to Nuneaton (F2N)</b>	<b>3.64</b>	<b>3.64</b>
	<b>Total - IRP Alternative schemes at 4th Quarter 2019 prices</b>		<b>93.98</b>
	<b>Office for National Statistics "All Construction Price Index"</b>		<b>110.70</b>

## Basis of pricing

All assessments and estimates are based on the prices ruling at 4<sup>th</sup> Quarter 2019, 31<sup>st</sup> December 2019 to be comparable with the sums included in the Integrated Rail Plan, published November 2021.

The basis of pricing is also applied to the cost of cancelling the HS2 Project outside London.





### **7-5-5**

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