

Written evidence submitted by the Department for Transport (MTP0045)

Introduction

1. At Spending Review 2020, the Government announced £100 billion of investment in infrastructure across the UK for 20/21. This ambitious package of plans will level up the nations, regions, cities and towns of the UK and strengthen the Union – with vastly improved road and rail networks connecting up the country and getting the basics right everywhere with better roads, buses and cycling infrastructure.
2. This builds on the commitments set out in the manifesto and will support the delivery of the capital pipeline of transport investment that the Department for Transport (DfT) has responsibility for, such as HS2 and the strategic road network. DfT recognises the importance of ensuring that this investment is delivered effectively and that future investment decisions are appropriately appraised and managed.
3. Every major infrastructure project has a number of key requirements that need to be addressed to ensure it meets its objectives.
4. Firstly, there needs to be a clear rationale for any project, whether that is improving connectivity to make it easier for people to travel to work or making journeys on the transport network even safer. DfT will deliver investment that meets its long-term strategic objectives, including its three departmental Priority Outcomes.
5. Secondly, projects need a comprehensive plan for delivery, ensuring that they have a good design and deliver value for money. The Department is continually reviewing its approach to the appraisal and decision-making process for major projects, and is working to implement any changes resulting from the review of the Green Book by HM Treasury.
6. Thirdly, there should be strong governance in place, that identifies risks and problems as they arise, taking effective decisions to address them quickly. DfT has taken steps to improve oversight and governance, regularly reviewing this process to apply lessons learned and ensure that these projects deliver value for taxpayer's money.
7. DfT has an ambitious pipeline of major capital projects. We recognise the challenges that this presents, particularly, the shortage of skilled labour and meeting Government-wide decarbonisation targets. We are taking action to address these challenges, putting in place measures to increase the skilled workforce supply chain and reduce the carbon emissions of major projects.

Section 1: Transport infrastructure strategy and priorities

The Government's transport infrastructure priorities

8. The Government recognises the importance of securing long-term infrastructure investment, including for transport, as outlined in the recently published National Infrastructure Strategy (NIS).

9. The Department for Transport (DfT) is taking action across infrastructure for all modes of transport to make it easier for people to get to work and for businesses to create jobs. DfT is focused on delivering investment in transport infrastructure in line with long-term, strategic objectives. Three ‘Priority Outcomes’ for the department were published by HM Treasury as part of Spending Review 2020;
 - i. Improve connectivity across the United Kingdom and grow the economy by enhancing the transport network on time and on budget
 - ii. Tackle climate change and improve air quality by decarbonising transport
 - iii. Build confidence in the transport network as the country recovers from Covid-19 and improve transport users’ experience, ensuring that the network is safe, reliable, and inclusive.
10. On 16 December, the Government published the metrics that will be used to measure progress against these provisional Priority Outcomes.¹
11. Investment in transport infrastructure will further play an important role in achieving a number of cross-Government priorities, also published on 16 December, including:
 - Raising productivity and empowering places so that everyone across the country can benefit from levelling up
 - Working towards the 25 Year Environment Plan – including policy on managing green estate alongside railways and strategic roads; and reducing air pollution from transport
 - Achieving net zero greenhouse emissions by 2050 - working alongside other departments to deliver bold and ambitious new policy, legislation and infrastructure across all forms of transport
 - Increasing economic growth and productivity through improved digital connectivity and data infrastructure.
12. In addition to the longer-term priorities, the department is also working to manage nearer term pressures, particularly in relation to the ongoing impact of Covid-19 and the end of the EU Transition:
 - The Covid-19 pandemic has created enormous disruption; affecting people’s lives and businesses across the country. It has had a material impact upon travel demand, patterns and modes. In the short term, the Government remains focused on managing the impacts of Covid-19 and has committed £12.8 billion in funding to support the transport system for 20/21.
 - In parallel to its Covid-19 response, the department continues to support the transport sector through the changes that arose after the end of the EU Transition period.

The contribution transport infrastructure can make to the Government’s ‘levelling-up’ agenda and the economic growth of the UK’s towns, cities and regions outside London

13. The UK has regional disparities in economic performance are wider than in most other developed countries.² For those areas that feel left-behind, there are some common challenges which restrict economic growth. For example, a poor transport offer can restrict access to employment opportunities, resulting in a barrier to work.
14. The provision and delivery of transport infrastructure will be central to addressing these regional disparities and ‘levelling-up’ the country. Good, reliable transport is important to

help businesses conveniently move goods, reduce costs for businesses, help people access jobs and encourage the creation of new jobs in an area.

15. Transport has a range of levers but to drive long-term regional growth requires infrastructure policy to work in tandem across Government, including skills and education, business environment and housing accessibility. This will create the right conditions to attract investment, facilitate trade and innovation, and create jobs and specialised sectors.
16. As part of our Priority Outcome on ‘increasing connectivity’, we are ensuring significant investment in major cities outside of London, and in places that feel left behind. To do this, we are:
 - Enhancing our national network through our portfolio of major projects to deliver a world class national transport network.
 - Building our economic regions outside of London by ensuring quality transport connections across our regions allows economic areas to function as one
 - Delivering better local transport in our towns and cities via investment in bus and rail services in addition to improvements in rail, cycling and walking.
17. The Government is committed to better connecting the regions and nations of the UK, investing across the country, prioritising those areas that have received less support in the past. Key transport infrastructure investments include:
 - Delivering HS2, which will improve essential North-South connectivity, with an Integrated Rail Plan which will look at how best to ensure it also delivers transformational improvements in the Midlands and the North.
 - Record investment in strategic roads (over £27 billion), including the A66 between Penrith and Scotch Corner.
 - £500 million Restoring Your Railway Fund to restore the Beeching lines.
 - £2.5 billion Transforming Cities Fund to improve transport links and improve connectivity
 - £4.2 billion for intra-city settlements for 8 of the largest city regions in England.
 - A £2 billion active travel package in order to make it easier and safer for people to walk and cycle.

Impact of the coronavirus on the necessity and cost-effectiveness of current and future major transport infrastructure projects.

18. The Covid-19 pandemic has created enormous short-term disruption and could potentially leave a lasting legacy on the way people live, work and travel. As transport demand is almost entirely reliant on decisions made in other sectors, i.e. education, retail, business, leisure - how we work and shop in the future will be among the most important drivers affecting transport demand.
19. There remains however, a great deal of uncertainty regarding how the current, short-term transformational impact upon the UK’s transport system will play out in the longer term. This is in part due to inherent uncertainty with regards to the virus itself.
20. As a department we do not believe the impact of Covid-19 does not undermine the long-term arguments for infrastructure investment. As set out in the NIS, infrastructure – including transport – will have a key role to play in the UK’s Covid-19 recovery, with investment acting as crucial economic stimulus and supporting job creation in the near

term, and in the long term supporting realisation of key strategic objectives, such as decarbonisation and levelling up.

21. Making the public transport network safe, increasing confidence amongst the public and re-establishing demand when the public health situation allows, is essential for UK economic prosperity.
22. The Department is currently scoping a programme of work to:
 - Develop an evidence-based understanding the impact of the pandemic on travel behaviours now and in the future. We will model potential transport trends and articulate plausible future scenarios, drawing on the lessons learned from international trends and working with departments to agree a government-wide approach.
 - Develop a corresponding understanding of the implications for the Department's long-term strategic objectives (Priority Outcomes) and future work programme, including its major-infrastructure capital pipeline.
23. This will build on the work already underway, such as the in-depth COVID-19 Tracker Study titled '*All Change?*', which follows people's lives as they change and tracks travel behaviour, attitudes and social impacts of the COVID-19 pandemic in the UK. Wave 1 of the survey took place in May 2020, and the published findings show the significant impact lockdown had on people's lives and how people's travel patterns and attitudes to public transport have altered. Wave 2 has just been completed and Waves 3 and 4 are planned for October 2020 and February 2021, enabling us to track how people adapt and respond to policies, and how their intentions and behaviours change.

Delivering major transport projects while ensuring the Government meets its decarbonisation 2050 net-zero targets.

What the department is doing to focus on decarbonisation

24. One of the department's three Priority Outcomes is about decarbonisation: 'Tackle climate change and improve air quality by decarbonising transport'. DfT is expecting to receive the specific conditions and metrics to measure success for this priority outcome in relation to the decarbonisation of transport infrastructure in the coming weeks.
25. The department is committed to decarbonisation and supporting the Government to achieve its legally binding economy wide targets, including net zero greenhouse gas emissions by 2050 and is preparing to publish a bold and ambitious Transport Decarbonisation Plan for how we will decarbonise all of the UK's transport system while helping consumers, manufacturers and businesses to adapt to the changes. We will pursue sustainable developments and make sure that any net emissions increase from a project is managed within the Government's overall strategy for meeting carbon targets.
26. As part of this, DfT is planning and delivering transport infrastructure that will support the transition to a net zero carbon economy. For example, the investment of £1.3 billion in charging infrastructure to accelerate the mass adoption of electric vehicles ahead of ending the sale of new petrol and diesel cars by 2030'.
27. All major transport projects conduct environmental assessments, which include consideration of the carbon impacts or carbon savings associated with the project, both during construction and while in operation (transport mode in use). Analysis of these

impacts is conducted at project, sub-portfolio (transport mode) and portfolio level in relation to relevant decarbonisation targets and legislation.

28. DfT is working with other departments to embed a framework that will further drive down capital carbon emissions associated with the Government's Major Projects Portfolio. This includes enhanced metrics and methodologies for a 'whole life carbon' approach – one which minimises carbon impacts of projects from cradle to grave.
29. The Transport Infrastructure Efficiency Strategy (TIES) Living Lab demonstrator involves a consortium of Client Groups and Major Infrastructure projects, brought together by DfT to help accelerate the adoption of Modern Methods of Construction - this involves introducing new technologies, smarter designs, requiring less material, which reduce carbon whilst still ensuring the full resilience of new transport infrastructure.
30. The TIES Living Lab Carbon Group is building consensus across transport infrastructure client bodies, and their supply chains, to enable a more consistent and transparent approach to its measurement and management within transport infrastructure delivery.
31. The Transport Research and Innovation Board (TRIB) brings strategic coordination to transport research and innovation in the UK. TRIB comprises senior representatives from 18 organisations, including DfT's Arm's Length Bodies, Government Departments, major research and innovation funders, and local transport partners. TRIB convenes an Infrastructure Working Group that focuses on decarbonisation (whole life carbon management) approaches to smart transport infrastructure, identifying innovations and best practice in the design and build of assets.

Examples of reducing the impacts on carbon of delivering major projects

32. HS2:

- Once operational, HS2's energy-efficient trains will draw from an increasingly decarbonised grid. The network's capacity to encourage mode shift and release freight capacity on existing lines, which transfers cargo from roads to low-carbon rail, will bring further carbon reduction benefits.
- HS2 has a sophisticated carbon management system in place, for which it was awarded independent PAS 2080 accreditation – the world's first specification for carbon management – from the British Standards Institute. As part of this framework, HS2 has set targets for 50% carbon reduction against baselines for the construction of Phase One: London to Birmingham.
- HS2 also provides an example of the growing body of quantifiable evidence that demonstrates reductions in carbon often translate into reductions in cost. For example, the designers of Old Oak Common Station Roof, through a 27% reduction in structural steel, achieved a 2,700-tonne carbon reduction and cost savings of £7m.

33. Network Rail:

- Network Rail recently became the first railway organisation in the world to set science-based carbon reductions targets that will limit its own emissions in line with a 1.5°C warming scenario. This includes designing and building infrastructure in such a way as to minimise capital carbon.
- Network Rail's work to develop a Traction Decarbonisation Network Strategy will inform decisions about the scale and pace of rail decarbonisation, the deployment of different decarbonisation technologies on each part of the network to replace diesel

trains, and the delivery of our ambition to remove all diesel-only trains from the railway by 2040.

34. Highways England

- Highways England has designated funds to address issues beyond the traditional focus of road investment, including to help reduce its carbon footprint. For example, the A1 West Moor and Newton-on-the-Moor road renewal scheme in Northumberland was the first project in the UK to use a new recycling technique. This resulted in environmental benefits, including a 33% reduction in carbon emissions.

Accelerating transport infrastructure delivery

35. Transport infrastructure projects by their nature have a long lifecycle, through design stages, legislative challenges, procurement constraints, all through to the actual build. A large element of the levelling up agenda, and the move towards greater degrees of transport decarbonisation is the ability to move quickly on these projects, to make tangible improvement to people's lives. Accelerating the delivery of transport infrastructure projects is of upmost importance to the department, with a view to create jobs, increase connectivity, and boost the economy.

36. The Secretary of State established the Acceleration Unit in October 2020, to support programme and policy teams within the department to speed up the delivery of infrastructure projects and the implementation of new policy initiatives. The Unit's function is to assess new ideas and progress these to delivery, provide deep dives to understand barriers and blockages, and determine how these can be removed. The Unit works collaboratively across the department and with the transport arms-length bodies to understand the progress and the challenges projects, programmes and policy initiatives face.

Section 2: Appraisal and funding of transport infrastructure

37. DfT's **Transport Analysis Guidance** (TAG)¹ provides a comprehensive framework for capturing the impacts of transport investment whether monetised or not: economic, social and environmental. TAG provides guidance on the application of the Green Book in a transport context and underpins the development of the economic case. DfT's **Transport Business Case** guidance² sets out overarching principles for the development of business cases encompassing the strategic, economic, commercial, management and financial cases. Decision makers review all five cases in coming to decisions about spending proposals.

38. The evidence base underpinning TAG is continually under review. DfT's **Appraisal and Modelling Strategy**³ (AMS) sets out a 5-year programme focused on: people and place, modelling transformational impacts and housing, reflecting uncertainty, supporting the application of TAG, and developing and maintaining modelling and appraisal tools.

39. In response to significant changes in the appraisal environment in 2020, including revisions to GDP growth forecasts published by the OBR, the Green Book Review and the uncertainty introduced by the Covid-19 pandemic, DfT published a **Route Map**⁴ setting out how we will incorporate those changes within our appraisal guidance in a coordinated way.

The Green Book Review

40. In response to criticisms of Government appraisal methods, including the charge that methods are biased towards investment in London and the South-East, HM Treasury undertook a review of the Green Book ('the Review').
41. The Review found that while core appraisal methodologies themselves did not skew outcomes, the wider appraisal process may risk undermining the way of Government achieving its priority objectives, including around levelling up. These findings have been supported in work by external bodies, including the Centre for Cities⁵ and by academics at the Centre for Economic Performance, LSE⁶.
42. Following the review, HMT has published an updated Green Book which gives a stronger requirement on setting and assessing the impact on strategic objectives, greater focus to understanding impacts at a more local level, and includes new supplementary guidance on the appraisal of transformational changes and place-based analysis. The Review also identified a range of other steps to strengthen the approval and decision-making process and culture around the development of business cases.
43. The changes to the Green Book underscore the need to ensure that the strategic and economic cases are integrated and imply that greater emphasis is placed on the treatment and understanding of the interactions between individual investments and other projects, programmes or strategies
44. In addition to levelling up, the Review also highlighted the importance of reflecting the government's ambitions on carbon reduction in business cases. HMT has stated its intention to review whether there is a case for lowering the discount rate for environmental impacts (which would increase the benefits of schemes which improve environmental outcomes).

What does the Green Book Review mean for transport appraisal?

45. We have committed to provide an initial response to the Review as part of the Route Map, which we plan to publish this Spring. This will set out work already in progress to support the appraisal of schemes which meet Government's strategic priorities and how we plan to implement other changes required by the Review.
46. As well as identifying required changes to TAG, we are aiming to show how existing guidance can be applied more flexibly, particularly in relation to the wider economic impacts of transport investment at both a local and national level, and supporting scheme promoters to apply these, for example, through the publication of case studies which demonstrate application of TAG in business cases.
47. We also plan to develop proposals for the robust assessment and presentation of distributional and place-based impacts to support decision makers in better understanding impacts on priorities such as levelling up.
48. Existing tools such as the Rebalancing Toolkit provide a framework for the development of an evidence-based narrative to demonstrate how a scheme will deliver its strategic objectives in targeting economic growth in left-behind areas to underpin the Strategic Case. This stresses the importance of alignment with the evidence presented in the economic case and the economic narrative. We will review this toolkit and wider Strategic Case guidance in light of the Review's findings.

49. The Appraisal and Modelling Strategy set out planned actions to develop the evidence base and methodologies for capturing transformational impacts. In taking these actions forward, we will have regard to the new supplementary annex to the Green Book on appraisal of transformational impacts.
50. We will also consider how the Review's findings on the weaknesses in current business case development processes read across in a transport context and consider the wider actions required to support the changes set out in the Green Book. This will include reviewing and updating the transport business case guidance.

Section 3: Oversight, accountability and governance of transport infrastructure projects

Arm's Length Bodies

51. DfT acts as the sponsor for transport infrastructure projects and delivers them through delivery bodies or 'Arm's Length Bodies' (ALBs), some long established (e.g. Highways England and Network Rail) and some set up as bespoke entities to deliver specific projects (e.g. HS2 Ltd. and EWR Rail Ltd).
52. The boards of the ALBs are accountable to the Department for their performance and effective use of resources. The Chief Executive is appointed as Accounting Officer (AO) and reports to the DfT Permanent Secretary as the Principal Accounting Officer (PAO). The duties of an Accounting Officer are set out in Chapter 3 of Managing Public Money.
53. It is vital that DfT's bodies are accountable and empowered, and have the skills and capability to deliver our infrastructure programmes. To attract and retain people with the skills and experience to achieve success, DfT operates a framework for senior remuneration and reward like the rest of the public sector. The framework is designed to provide value for money to taxpayers whilst also ensuring clear accountabilities. For senior remuneration (where there are no delegations in place for the bodies to take decisions), Ministers provide robust challenge on senior salaries and oversee decisions by providing approvals for appointments above £150k pa. Ministers are unambiguous that our bodies should be delivering to a high standard and offering value for money to taxpayers. The Secretary of State has championed action to reduce excessive executive pay, reducing the senior wage bill for senior appointments by over £1m in 2020, and – where there has been cause to do so - reduced performance related awards where performance should have been better.
54. DfT has a well-established structure of shareholder, client and policy sponsor teams for its ALBs. The critical success factors for delivery are set out in Chapter 4 of UKGI's UK government arm's length bodies (2020). DfT works closely with UKGI to provide effective governance for delivery bodies and optimise shareholding expertise. For example, UKGI provides a shareholder-appointed director to the Highways England Board.
55. DfT has a written agreement with each ALB - known as a framework document - out the corporate roles and obligations of each party and the process for making senior appointments. The Secretary of State is the sole ALB shareholder.
56. The role of the DfT shareholder function is to represent government's interest, ensure the ALB is capable, well governed and performs, and support the Secretary of State in making public appointments to the body.

57. The DfT policy sponsor is responsible for setting out the purpose of the ALB, specifying policy outcomes, monitoring their delivery and holding the ALB to account for delivery of a project.
58. A development agreement (or similar) governs the project relationship between the Secretary of State and the delivery body, and sets out the roles of the ALB as project client and delivery agent and DfT as sponsor, client to the ALB, and funder for a particular project or programme.
59. DfT itself provides departmental representation on the boards of its delivery bodies. In the case of HS2 Ltd, for example, Ian King (the lead NED on the DfT Board) serves as a NED on the HS2 Ltd Board, Clive Maxwell (DfT Director General for High Speed Rail) sits on the HS2 Ltd Audit, Risk and Assurance Committee, and Nick Joyce (DfT Director-General for Corporate Delivery) sits on the HS2 Ltd Remuneration Committee.

DfT Decision-Making Process

60. Whilst projects undergo gated investment decisions through an ALB's own governance and decision-making structures and processes, where not delegated they also go through DfT's investment decision making process. This ensures oversight by an investment board made up of senior subject matter and functional experts. Business cases undergo assurance by DfT's own functional Centres of Excellences (CoEs). Delivery bodies provide regular updates to DfT committees on the health of projects and on their wider portfolios (e.g. Highways England on the Roads Investment Strategy (RIS) portfolio).
61. In some cases, there is a need to collaborate with other government departments to ensure that joint objectives and desired outcomes are delivered. An example of this is the Oxford-Cambridge Arc through which government aims to deliver new homes and transport links (by road and rail) and unlock growth. DfT is represented on the MHCLG-led Arc board which applies a 'place-based' approach to the economic regeneration and growth plans.
62. The Infrastructure and Projects Authority (IPA) and the Government Internal Audit Agency (GIAA) play an important role in independent assurance. The IPA supports Gateway Reviews for projects that sit in the Government Major Projects Portfolio (GMPP) and provide advice and support throughout the project lifecycle. The GIAA provides targeted support through audit activity. On some of our most complex and largest projects (e.g. Crossrail), further assurance is provided through the appointment of an expert project-representative (P-Rep) to provide an independent view on risks and significant issues.
63. DfT and the IPA published a report in April 2018 entitled 'Lessons from transport for the sponsorship of major projects' which led to DfT establishing a "Project Delivery Improvement Programme" (PDIP). Through PDIP, DfT assesses projects against the report's 24 lessons and is creating a central lessons repository. It is also introducing behavioural interventions such as red team reviews and 'pre-mortems'.
64. DfT's Tier 1 investment committee is the Investment, portfolio, and delivery committee (IPDC). PDIP was used to transform the way the previous committee operated by ensuring IPDC has the right expertise and information to make decisions, that the health of a portfolio is reported at both project and portfolio level and by shifting the tone of meetings to one of critical and evidence-based challenge.

65. Adequate internal capability and capacity to support project delivery is crucial. As part of a PDIP change programme, DfT has established a central portfolio and project delivery directorate (PPDD) led by a Chief Portfolio Officer. It identified SRO resourcing gaps and, as a consequence, DfT is creating a new Director-General group for rail infrastructure projects and has taken on several new director level SROs. PPDD also works on talent development, sharing of best practice via a community of practice and supports learning and development and project management chartership applications. The PPDD also includes an Infrastructure Efficiency and Engineering team, led by the DfT Chief Engineer, to ensure policy outcomes are translated into effective project requirements and that those requirements are delivered as efficiently as possible.
66. Ministers have a role to play in policy development and how projects are held to account. Notably, three DfT Ministers have thus taken part in the Sponsoring Major Projects: Ministerial Programme, organised by the IPA and delivered by Oxford Said Business School. Through the programme they are being upskilled and equipped to provide more effective challenge and aid better decision making.
67. The scale of DfT's investment portfolio means we need to continually reassess how we deliver projects and learn lessons. This was identified in NAO's recent report published in November 2020 'Lessons learned from major programmes'.
68. Across government, Project Speed has been a vehicle for looking at how government can deliver infrastructure 'better, greener, faster'. The range of reform initiatives is outlined through the National Infrastructure Strategy (NIS), and the department has established a central DfT Project Speed team to address these.
69. A key focus of the Acceleration Unit will be to review and determine how internal governance can be improved and streamlined throughout the department, ensuring that the core purpose of governance is maintained, whilst not being overly onerous to delivery teams. This aligns with a wider DfT workstream being looked at through Project Speed pathfinders, such as the A66.

Section 4: Factors influencing the cost of transport infrastructure in the UK

70. DfT has undertaken a range of activities to better understand the key drivers behind transport infrastructure costs in the UK. This should boost its forecasting accuracy and improve efficiency in design and delivery. It includes developing its own and Arm's Length Body (ALB) cost benchmarking capability, investing in targeted innovation and supporting wider UK construction reform.
71. High costs are not unique to transport infrastructure. Productivity improvements in construction are poor compared with the general economy or other engineering sectors (e.g. automotive). Accurate cost estimating for major infrastructure remains a global challenge with most *major* projects delivered over budget³. The department has therefore examined both transport and the wider infrastructure sector, supporting publication of the cross-Whitehall Construction Playbook and various initiatives linked to 'Lessons from Transport for the Sponsorship of Major Projects'⁴ and 'Project Speed'.

Reasons for high costs of transport infrastructure in the UK

72. The cost and cost accuracy of transport infrastructure across all modes are typically driven by several, project-specific factors, including:
- **Location** - site access, 'greenfield' as opposed to 'brownfield' and environmental sensitivity.
 - **Scale/standardisation** - economies and diseconomies of scale.
 - **Design specification** - proven, 'off the shelf' assets versus one-off, novel design.
 - **Engineering complexity** – low tech compared to complex and interdependent systems
 - **Geology and Topography** - challenging ground conditions and more tunnels and viaducts.
 - **Utilities and crossings** – higher density in urban locations. Poor asset registers making accurate estimating difficult. Outside the UK utility companies or another agency sometimes bear the cost of diversions or road crossings over a new railway.
 - **Land** – variations between countries and locations and difficulty accurately forecasting land costs.
 - **Construction sector structure** – The UK market structure is more fragmented than its European counterparts, with overhead on overhead, leading to inflated indirect costs and little innovation.

Delivering transport infrastructure projects more cost effectively

73. For decades the construction industry has lagged behind other sectors. Structural problems, such as a fragmented market, low profit margins and a lack of innovation, are well known but have proven intractable. For this reason, Government launched a new **Construction Playbook** (i.e. procurement guidelines) in late 2020. A joint endeavour between the public sector and industry, the Playbook is aimed at transforming how we deliver construction projects. Industry will be incentivised to innovate through modern methods of construction, with clear, outcome-based, specifications set by Government. Longer term and more sustainable contracts across portfolios should drive greater value and improve the financial health of the sector, and as a result, reduce unit costs and lend greater cost and schedule predictability to our projects.

International benchmarking

74. In 2016 PwC undertook an international benchmarking study of high-speed rail costs. It highlighted that the strategic objectives of HS2, such as regional growth, drove the need for more intermediate stations than international comparators and that sensitive environments (e.g. running into city centres, leading to more tunnelling) were key drivers behind higher total project costs per km for UK high speed railways.
75. However, international comparators should be treated with caution as they are often subject to a degree of uncertainty, particularly when comparing:
- **Project scope** - identifying which costs can and cannot be benchmarked, such as land purchase.

- **Asset types** - difficulty in breaking down the project scope/costs into individual asset types or elements (e.g. bridges or utility diversions), limiting comparisons at asset type/element level and our ability to factor in any variance in these.
 - **Reported costs** - dealing with differences in reported costs (for the known project scope). Direct costs, such as enabling works and approach roads, and indirect costs, such as client team, planning consents or design development, may all be treated differently in other countries.
 - **Local operating environment** - dealing with different regulatory, health and safety, taxation/national insurance/pension regimes.
 - **Prices and values** - dealing with differences in inflation, productivity and foreign exchange.
76. The department has now developed its own benchmarking capability to consider infrastructure costs at an ‘asset-class’ level (i.e. earthworks, tunnelling, buildings etc., across infrastructure types), ensuring cost comparators (whether domestic or international) are adequately visible, appropriate and robust. DfT has incorporated this into the project development process on HS2, East-West Rail and other major schemes. Analysis has been used to test value for money and uncertainty in estimates of scheme costs. The department is also supporting wider benchmarking capability in the sector through its **Transport Infrastructure Efficiency Strategy (TIES)**.

Learning lessons

77. Whilst it is difficult to compare the costs of UK transport projects with international competitors, it is still useful to apply best practice from elsewhere. This is an active consideration in the procurement strategy where ALBs undertake market capacity assessments from the outset. Specific examples where the department has sought to improve cost effectiveness include:
- Each of the four HS2 Main Works Civils Contractors for Phase One includes a major international contractor, allowing for sharing of international best practice in transport infrastructure and railway construction.
 - The use of autonomous vehicles and modern methods of construction across the Highways England portfolio.
 - In the Construction Playbook there are new requirements to create “Should Cost Models” which will use benchmarking data to improve cost robustness. The Playbook will also set a new requirement for lessons to be captured throughout the life of a project and programme, shared and fed back into delivery throughout to improve processes and speed up delivery.
 - It should lastly be noted that the Department is regularly reviewing its approach to effective sponsorship. For example, Notice to Proceed in Spring 2020 on the HS2 Phase One route was conditional on the establishment of a new Ministerial Task Force, Non-Executive Directors appointments and a twice-yearly report to Parliament. These initiatives are intended to aid scrutiny and transparency, ultimately improving value for money to the taxpayer and will in time ensure that HS2’s sponsorship arrangements become an exemplar for other programmes.
78. The Acceleration Unit’s Expert Panel, made up of industry leaders, will be used as a mechanism to explore best practice within industry. The panel will focus on the efficient

delivery of infrastructure projects, sharing lessons, with a view to cost reduction. The Unit has also begun engaging with international governmental infrastructure bodies to build up a wider picture of best practice, and to ensure the department is benefitting from developments occurring internationally.

Section 5: Transport infrastructure capacity and skills

79. The increased Government ambitions for investment in transport infrastructure amplify the need to secure an increased market capacity in terms of workforce and skills. Given the unpredictable nature of the construction sector and the continued uncertainty through the crisis period, it is not possible to precisely predict the extent of the shortage and its impact. However, both DfT and the Government as a whole, have established a series of initiatives and interventions that directly or indirectly increase the skills supply chain capacity to some extent.

What we know

80. Several industry groups anticipate a labour shortfall arising in the construction and infrastructure market from 2023/24 as levels of new work return to pre-crisis levels. We are aware of analysis from the National Skills Academy for Rail (NSAR) indicating that 28% of the current rail workforce is aged 51 or over, and that a significant number of rail workers will retire over the next decade⁵. Due to the limited demand of this current period, there is little concrete incentive for the market to invest in training and retention. Several initiatives are on-going to stimulate the supply chain to create new workforce.

81. The IPA has supported DfT and other departments to predict the market capacity dynamics. This includes a short-term risk of reduced industry capacity as firms seek to minimise overhead expenditure until private new work returns to pre-COVID levels in 2022/23. In the medium to long term elevated levels of public investment met by a return to pre-COVID levels of private investment suggests a risk of a labour deficit arising in 2024/25 and continuing to increase up until 2029/30. This is compounded by significant regional disparities. This may have implications for schemes within the Integrated Rail Plan based in the Midlands and North where there is a historically lower level of infrastructure investment and construction workforce.

The uncertain nature of the construction and infrastructure demand

82. It is not possible to predict the exact construction workforce and skills demand and offer, for the following reasons:

- **Wider public-sector impact on the market** - The supply chain capacity is impacted by construction projects other than the ones from the transport sector. The Government has considerable ambitions in the infrastructure sector, including for schools, hospitals, new nuclear, housing and prisons. All of them compete for securing a slice of the future market capacity.
- **Spending Review** – Despite most major projects receiving multi-year funding as part of the 2020 Spending Review, only one year of funding was provided for other areas. This underlines the importance of Government publishing and updating consistent major project pipelines to provide visibility of future work to the supply chain, but of even more importance will be the need to provide certainty of demand to the supply

chain. This will in turn lead to more supply side confidence and bring about the necessary investment in skills and training.

- **Private sector** – There is uncertainty about when private sector investment will return to the pre-COVID-19 levels. Given the unpredictable nature of the COVID-19 crisis and recent agreement for the EU-UK trade terms, it is difficult to predict private sector demand for the future years.
- **International sector** – Worldwide Governments are using infrastructure capital investments as a lever for economic recovery. At this stage, it is not possible to forecast the impact of international demand on the UK construction supply chain, especially at sub-contracting level.
- **Transparency at lower tiers of the supply chain** - Our market engagement and analysis tend to focus on the first tier of contractors, mainly composed of large construction companies. It is known the Tier 1 market heavily relies on a wide range of sub-contractors at different levels, often in the SME sector. There are concerns the COVID-19 crisis and the end of the Transition period will negatively impact the market, reducing the sector's capacity and ability to innovate.

What we are doing

83. In DfT and across Government, several initiatives are on-going which have a positive impact on the market capacity. The Government is actively working with industry to build up the construction workforce. This has been incorporated into Project Speed as a key workstream and seeks to promote the entry, upskilling and retention of workers across infrastructure and construction. In addition, the Government has set out how it intends to engage with industry through the recently published Construction Playbook. By applying the policies listed within the Playbook Government will seek to provide industry with long term certainty of new work and in doing so promote inward investment in skills and innovation.
84. Several teams and people in DfT engage with the supply chain, study the market, or work with the construction providers. As an example, the Rail Industry Competitiveness Division has a dedicated team focused on rail supply chain issues. This team is working with the Department for International Trade and the University of Derby to develop a UK rail supply chain capability map as part of the Rail Sector Deal Exports Pillar. In the Group Commercial Directorate, a team is dedicated to managing our strategic suppliers and to map the lower tiers of the supply chain. Our ALBs are also conducting several pieces of work in the subject. Network Rail proactively engage with their supply chain, and HS2 Limited is mapping their tier 2 providers.
85. The Cabinet Office has a dedicated Markets and Suppliers team to analyse and track the Government's major markets. They recently published their first analysis on the construction market. The Cabinet Office has recently published the Construction Playbook which also engages with the market and defines the way we procure and contract with them. Several policies have been introduced and will secure an increased market capacity for the UK.
86. By using the right policy and engagement levers early, the Government aims to secure an increase in construction workforce and skills for the future. However, this is a challenge that will require enduring Government and industry leadership over the long-term.

Transport Infrastructure Skills Strategy

87. The Transport Infrastructure Skills Strategy (TISS) was published in January 2016. The strategy set out an ambition for public sector infrastructure clients to leverage procurement levers more efficiently to deliver apprenticeships throughout the sector, including:
- Setting ambitious targets contractually to deliver apprentices (suggesting a target of 1 apprenticeship per £3-5m of contract spend across the infrastructure projects; where a percentage headcount target would be more appropriate, the TISS recommended a level of 2.5% apprentices per annum).
 - Ensuring skills are a robust factor in evaluating tenders, while remaining proportionate.
 - Supporting suppliers to ensure the skills agenda shapes behaviours.
88. To support and deliver on this ambition, the commercial community formed the Supply Chain Skills Network, comprising leads from HS2 Limited, TfL, Network Rail, DfT, Highways England, Crossrail and Heathrow. Targets were incorporated in infrastructure contracts from March 2016 and quarterly reporting introduced. The Network continues to meet regularly and to date has delivered in excess of 11,250 new apprenticeship opportunities as a direct result of public procurement. The Network shares best practice, identifies and works to resolving common barriers and provides a strong platform for speaking with one voice to the supply chain. Remaining challenges include improved visibility of targets within the lower tiers of the supply chain and being able to measure and evidence retention rates.
89. The Supply Chain Skills Network sits under the broader Strategic Transport Apprenticeship Taskforce, which was created in 2016 to deliver the targets and ambitions of the TISS. In addition to looking at procurement, the taskforce has focused on a number of initiatives to solve skills shortages in the sector including.
90. The TISS and its ambitions are currently being refreshed, working closely with transport and construction employers, with an updated Transport Skills Strategy due to be published in spring 2021. It will build on the work done to date, retaining a focus on apprenticeships but also aligning to DfE Further Education reforms which outline how employers can support people to get the skills needed, particularly for priority growth sectors like construction, by offering a range of work placements and traineeships in addition to apprenticeships and higher technical qualifications. It will also build on previous work to increase the diversity of the workforce, particularly looking at what more can be done to attract and retain those from underrepresented groups. It will also focus on support for SMEs in the supply chain to make long term investments in skills, through models such as shared apprenticeships.

Conclusion

91. As set out in Spending Review 2020 and the National Infrastructure Strategy, investing in transport infrastructure will be key to delivering this Government's priorities. The department has clear priority outcomes for transport which will guide the approach to

investing in infrastructure across the UK, ensuring that this reflects any long-term effects of the coronavirus pandemic. We will continue to review how these major projects are delivered, using best practice to find ways to improve oversight and governance. DfT is aware of the challenges to delivering these projects, particularly in ensuring that there is a sufficient skilled workforce. As this evidence shows, we are taking action to address these challenges.

January 2021

Endnotes

¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/944491/Provisional_priority_outcomes_and_metrics.pdf

² https://www.oecd-ilibrary.org/economics/united-kingdom-reducing-regional-disparities-in-productivity-peter-gal-and-jagoda-egeland_54293958-en

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⁴ <https://www.gov.uk/government/publications/lessons-from-transport-for-the-sponsorship-of-major-projects>

⁵ <https://www.cityandguildsgroup.com/-/media/cgg-website/documents/cgg-back-on-track-report-pdf.ashx?la=en&hash=07668348451D8F75A8526EBC033870739293AB19>