

Research Briefing

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# Transport appraisal and evaluation



## Summary

- 1 Background
- 2 Transport appraisal processes
- 3 Transport appraisal: benefits, limitations and proposed reforms

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## Summary

Transport infrastructure is integral to national policies such as the Government's Levelling-Up and decarbonisation agendas. The [Centre for Cities](#), a think tank, note how good transport connections directly improve the overall economy as well as supporting people, businesses and the environment. [Decisions on transport](#) include those on:

- major infrastructure projects/programmes, such as High Speed 2 or changes to the Strategic Road Network;
- small infrastructure schemes, such as a new station or local road; and
- individual instrumental policies, such as the setting the powers for implementing and operating a light rail scheme.

Investment in a particular scheme or project requires an understanding of the anticipated benefits it could bring as well as the expected costs and timescale of its implementation.

### Transport appraisal guidance and processes

Overarching guidance on the appraisal of policies, programmes and projects is provided by the Government in [The Green Book](#). This was revised in 2020 to place greater emphasis on wider strategic priorities, such as the levelling up and decarbonisation.

The Department for Transport (DfT) have used the principles of the Green Book to produce its [Transport Analysis Guidance](#) (TAG), which must be used for schemes requiring Government approval. It consists of three stages:

- Stage 1: option development;
- Stage 2: further appraisal; and
- Stage 3: implementation, monitoring and evaluation.

A key part of the appraisal process is the development of a [transport business case](#). Transport business cases follow a five-case model, which includes: a strategic case, an economic case, a financial case, a commercial case and a management case. Each of these cases becomes more complete as the business case develops. Development of the project business case typically consists of three stages: a Strategic Outline Business Case (SOC), an Outline Business Case (OBC) and a Full Business Case (FBC).

## Benefits, limitations and prospects for reform

The Government's methods for appraising transport projects have endured and are recognised internationally. The methods the DfT use to appraise transport today have [a lot in common with those used in the 1960s](#). The [Institute for Government \(IfG\)](#) note how the DfT's guidance has helped inform transport appraisal across OECD countries. The main benefit of the Government's transport appraisal process is its consistency. The process can be applied to projects of varying sizes across all modes of transport. According to the [Institute for Transport Studies](#), these processes, however, have endured partly because, while the underlying principles have remained the same, the processes have been adapted to reflect changes in government policy.

The processes for appraising transport have several limitations. These range from technical issues on the one hand through to questions about the role these processes play in the decision-making process. On the technical side, the [Transport Planning Society](#) has argued that the forecasts and modelling used in transport appraisal favour certain criteria, such as travel time for car journeys, while undervaluing or missing others. This can mean that interventions which promote travel by more sustainable modes can score badly. In addition, because these models project past trends into the future, interventions which focus on changing behaviour can also score badly.

These appraisal methods, while useful, are also very complex and are often not well understood by decision makers in local and central government, [according to the IfG](#). While transport appraisal entails balancing a series of economic, social and environmental benefits, the [IfG](#) has noted the economic case, especially the benefit-cost ratio, tends to dominate thinking on transport projects. Other commentators, such as the [Transport Planning Society](#), agree.

Another challenge is how the transport appraisal system interacts with politics. The [Institute for Transport Studies](#), for example, has noted that for some the appraisal process "encroaches too far on the discretion of democratically elected politicians to make choices on behalf of society." As the current process is highly centralised, the devolution agenda also poses critical questions for the future of transport appraisal.

As a result of these limitations, there are calls, such as from the [Transport Planning Society](#), for a fundamental reform of the transport appraisal process to reflect the current demands on the transport system, most notably from climate change. Such reforms could include the introduction of a pass/fail test for transport projects, based on the carbon emissions they generate.

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# 1 Background

## 1.1 Why is transport infrastructure important?

Transport connectivity is integral to national policies such as the Government's Levelling-Up and decarbonisation agendas. Transport networks with high connectivity and efficiency increase accessibility whilst reducing transport costs and are therefore typically associated with higher levels of development, alongside economic and social opportunities and benefits.<sup>1</sup> Conversely, those that have reduced capacity or reliability constrict the local economy and lead to lower quality of life.<sup>2</sup> The Centre for Cities, a think tank, note how good transport connections directly improve the overall economy as well as supporting people, businesses and the environment. According to the Centre for Cities, good transport connections:

- help people to access jobs;
- support innovation, productivity and economic growth, both nationally and within cities;
- help attract new firms to cities;
- unlock sites for housing and commercial development; and
- can help reduce emissions.<sup>3</sup>

It is, however, worth noting that there can also be negative environmental impacts from new transport infrastructure. For example, new roads can lead to long-term growth in traffic levels which increase greenhouse gas emissions.<sup>4</sup>

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<sup>1</sup> Rodrigue J-R, Notteboom T., 'Transportation, Economy and Society', Ch. 3 in *The Geography of Transport Systems*, 5<sup>th</sup> ed., Rodrigue J-R. (ed)., Routledge, New York, ISBN: 978-0-367-36463-2, 2020.

<sup>2</sup> Rodrigue J-R, Notteboom T., 'Transportation, Economy and Society', Ch. 3 in *The Geography of Transport Systems*, 5<sup>th</sup> ed., Rodrigue J-R. (ed)., Routledge, New York, ISBN: 978-0-367-36463-2, 2020.

<sup>3</sup> Wilcox Z., Nohravá N., '[Transport essential for growth in cities](#)', Ch. 2 in *Delivering change: Making transport work for cities*, Centre for Cities, 2014.

<sup>4</sup> Sloman L, Hopkinson L, Taylor I., '[The Impact of Road Projects in England](#)', *Transport for Quality of Life*, Campaign to Protect Rural England, March 2017.

## 1.2 What does transport planning involve?

The National Association of Local Council's guide on transport planning explains that transport planning involves first understanding the transport needs of a town, city, region or country and then developing and delivering projects that support the movement of people and goods.<sup>5</sup> It should not only consider where changes to existing transportation are required, including the provision of new transport links, but the impact that these could have on individuals and society.<sup>6</sup> As such, transport planning entails the consideration of a variety of social, economic and environmental issues, including:

- climate change and pollution;
- economic activity and productivity;
- health and quality of life;
- demographic changes; and
- new technologies.<sup>7</sup>

### Types of transport projects

Decisions on transport include those on:

- major infrastructure projects/programmes, such as High Speed 2 or changes to the Strategic Road Network;
- small infrastructure schemes, such as a new station or local road; and
- individual instrumental policies, such as the setting the powers for implementing and operating a light rail scheme.<sup>8</sup>

Investment in a particular scheme or project requires an understanding of the anticipated benefits it could bring as well as the expected costs and timescale of its implementation.

## 1.3 How are transport projects funded?

Much of the funding for transport, especially new transport infrastructure, is provided by Government. The Infrastructure Pipeline outlines that between 2021 and 2024, £70 billion is to be invested in transportation. Of this, over £50

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<sup>5</sup> National Association of Local Councils. [The Good Councillor's guide to transport planning](#), 2019.

<sup>6</sup> National Association of Local Councils. [The Good Councillor's guide to transport planning](#), 2019.

<sup>7</sup> National Association of Local Councils. [The Good Councillor's guide to transport planning](#), 2019.

<sup>8</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

billion will be publicly funded, with the remainder a mix of public and private investment.<sup>9</sup>

Large scale projects, and those involving national networks, are managed by Government through national bodies, such as Network Rail, National Highways and HS2 Ltd.<sup>10</sup> The Government is also responsible for ad-hoc funding schemes. These are typically short term, competitive funds that are targeted at specific modes (e.g. for walking, cycling and bus services) or other priorities.<sup>11</sup> Such smaller transport projects are typically managed locally, either by councils, a group of councils working together (for example in combined authorities), or local transport authorities (LTAs) (such as Transport for London (TfL)). The funding for many local schemes has been provided through Local Enterprise Partnerships (LEPs), which receive central funding to allocate within their locale using competitive bidding processes.<sup>12</sup>

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<sup>9</sup> Infrastructure and Projects Authority, [Analysis of the National Infrastructure and Construction Pipeline 2021](#), August 2021.

<sup>10</sup> National Audit Office, [Department for Transport: Departmental Overview 2019-20](#), December 2020

<sup>11</sup> National Audit Office, [Department for Transport: Departmental Overview 2019-20](#), December 2020

<sup>12</sup> Wilcox Z., Nohravá N., '[Transport essential for growth in cities](#)', Ch. 2 in *Delivering change: Making transport work for cities*, Centre for Cities, 2014.

## 2

# Transport appraisal processes

This Chapter provides an overview of the UK Government's processes, which are used to assess transport policies and investments.

Further details regarding government policies and investment surrounding infrastructure projects are available in the library briefing on [Infrastructure policies and investment](#).

## 2.1

### Green Book

#### What is the Green Book?

Issued by HM Treasury, the Green Book provides guidance on how to appraise policies, programmes and projects using approved models and methods.<sup>13</sup> It is mandatory to use the guidance within the Green Book, as well as the supplementary guidance, for proposals requiring the use of significant new or existing public resources. However, the Treasury is clear that the Green Book “is not a mechanical or deterministic decision-making device.”<sup>14</sup> Instead the Green Book, according to HM Treasury, provides:

approved thinking models and methods to support the provision of advice to clarify the social – or public – welfare costs, benefits, and trade-offs of alternative implementation options for the delivery of policy objectives.<sup>15</sup>

The Green Book has been criticised because the methodology can reinforce regional imbalances,<sup>16</sup> with schemes within or serving London more likely to be approved, even if they have relatively low cost-benefit ratios (BCR).<sup>17</sup> Following a review by Government, a new version of the Green Book was published in December 2020.<sup>18</sup> The updates have:

- greater emphasis on the strategic case for projects;
- provide guidance on appraising transformational change.
- put more emphasis on project evaluation.

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<sup>13</sup> HM Treasury, [The Green Book](#), 3 December 2020.

<sup>14</sup> HM Treasury, [The Green Book](#), 3 December 2020, p1.

<sup>15</sup> HM Treasury, [The Green Book](#), 3 December 2020, para 1.2

<sup>16</sup> Breach A. Jeffrey S., Re-writing the Green Book for levelling up, Centre for Cities, September 2020.

<sup>17</sup> Coyle D. Sensier M., The imperial treasury: appraisal methodology and regional economic performance in the UK, *Regional Studies*, 54 [3] 2020 [doi.org/10.1080/00343404.2019.1606419](https://doi.org/10.1080/00343404.2019.1606419).

<sup>18</sup> [Government investment programmes: the 'green book'](#), Lords Library In Focus, 17 March 2021.

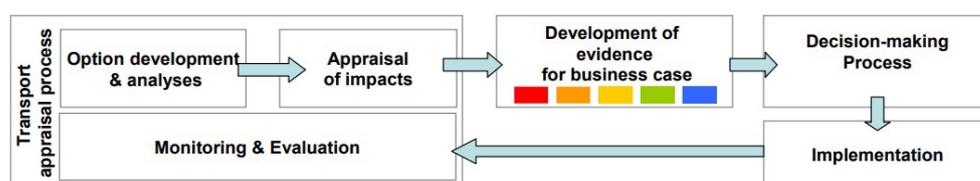
## 2.2 Transport Analysis Guidance (TAG)

The DfT have used the principles of the Green Book to develop their own guidance on appraising and modelling transport: [Transport analysis guidance \(TAG\)](#). TAG is used for projects requiring government approval, but also is intended to act as a ‘best practice guide’ for other transport projects.<sup>19</sup> The transport appraisal process, according to TAG, consists of 3 major stages:

- Stage 1: Option development;
- Stage 2: Further appraisal; and
- Stage 3: Implementation, monitoring and evaluation.

As with the Green Book, TAG is not a decision-making process, but is designed to support the transport appraisal process, which, in turn, forms part of the overall decision-making process entailed in a transport infrastructure project. The interaction between appraisal and decision-making is shown in Picture 1.

**Picture 1: Relationship between transport appraisal and decision-making**



DfT, [Transport Appraisal Guidance: An Overview of Transport Appraisal](#), p. 2, January 2014

### Stage 1: Option development

The aim of this stage is to identify the project’s objectives and develop options that meet these requirements. The DfT advise that this should be undertaken using objective-led and evidence-based methods. However, the process should be proportionate to the requirements defined.<sup>20</sup>

As part of this first stage, the DfT advise that those responsible for appraising transport projects should assess the current, and potential future, context and conditions of transport within the area covered by the proposed project.<sup>21</sup> The purpose of this is to identify the needs and objectives the transport

<sup>19</sup> DfT. Transport analysis guidance, [Guidance](#), 13 October 2021, accessed: [7 December 2021].

<sup>20</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>21</sup> DfT. Transport analysis guidance, [Guidance](#), 13 October 2021, accessed: [7 December 2021]

project in question needs to meet, including how it helps achieve relevant national and local policies.<sup>22</sup>

Based on the Five Cases Model in the Green Book, TAG recommends that a range of options should be generated and sifted through, so that only those options which fulfil the project's objectives, and other key criteria, are taken forward. According to the DfT, these should then be developed and assessed, with public consultation on the potential options.<sup>23</sup>

Underpinning the development of all options is a process of on-going engagement with stakeholders, which includes all interested parties. This can range from informing stakeholders about the potential options through to seeking their views via consultation or actively engaging them in the design of the project.<sup>24</sup>

The DfT advise that an estimate of the costs of the project, such as the cost of building, operating and maintaining the infrastructure, should be developed at this stage. The DfT advise that the maximum level of optimism bias should be applied in this first stage to account for the lack of a detailed design and thorough assessment of the possible risks.<sup>25 26</sup>

The options are then shortlisted, so that the options with the greatest potential are assessed further. This process is documented in an Option Assessment Report (OAR). The DfT also advise that an Appraisal Specification Report (ASR), detailing the methodology and scope of further appraisal, should also be produced at this point.<sup>27</sup>

## Stage 2: Further appraisal

At this stage, a shortlist of the most viable options are appraised so that sufficient information can be gathered to allow decision makers to decide whether to proceed with an intervention and, if so, with which one.<sup>28</sup> The assessment carried out at this stage also enables decisions to be audited.<sup>29</sup> A more detailed appraisal of the project and the likely costs are possible at this stage because the design of the project is more advanced.<sup>30</sup>

It is usual for a formal model of the transport system to be used at this stage. Such models provide a detailed representation of the transport network including information regarding the travel market. The purpose of this is so the full impact of the proposed scheme, including its likely influence on other

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<sup>22</sup> DfT, Transport analysis guidance, [Guidance](#), 13 October 2021, accessed: [7 December 2021]

<sup>23</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>24</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>25</sup> Optimism bias is the proven tendency for appraisers to be overly optimistic of the costs, benefits, and duration of projects.

<sup>26</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>27</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>28</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>29</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>30</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

parts of the transport network, can be understood. The DfT advise that the model used should be proportional to the extent of the proposed intervention. For example, a city-wide light rail scheme is likely to require a fully-specified, city-wide multi-modal transport model, whereas a highly localised junction improvement may only require a tightly-defined area to be modelled.<sup>31</sup>

An analysis of the cost and benefits is also carried out at this stage. Work is undertaken, for example, to monetise various social and environmental impacts of the scheme. In addition, the DfT's guidance stresses:

Of particular importance in these calculations is the consistent and explicit treatment of flows of taxes, so that impacts on the Exchequer can be identified, and flows of fares, tolls and charges paid by travellers, and revenues received by transport operators, can be accounted for.<sup>32</sup>

The DfT advise that the costs should be re-estimated and particular consideration should be given to the level of optimism bias that may have affected the appraisal thus far.<sup>33</sup> For example, the level of optimism bias could be adjusted at this point, as the design and costs of the scheme are more certain.<sup>34</sup>

This phase can take longer than other parts of the transport appraisal process because lot of information needs to be collected to make a detailed assessment of the different options. In addition, certain preparatory steps, such as obtaining relevant statutory powers to implement the scheme, may also be carried out at this stage. This stage also entails engagement with stakeholders, including public consultation prior to final selection.<sup>35</sup>

To support local authorities make decisions, the Government has produced Local Authority Toolkits for specific types of schemes, such as the 'Small scheme appraisal toolkit',<sup>36</sup> for small highway or bus improvements, and the 'Active Mode Appraisal Toolkit'.<sup>37</sup> These have been developed to support decision-makers to monetise the impacts of schemes, including those to users, the environment, society and the economy.

### Stage 3: Implementation, monitoring and evaluation

The final stage of the appraisal process includes the implementation of the preferred option as well as post-implementation monitoring and evaluation. According to the DfT, an implementation programme should be developed commensurate to the size and scale of the intervention. Larger schemes, for example, may take several years to implement. In such cases, appropriate

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<sup>31</sup> DfT, [TAG: advice for the technical project manager](#), 31 May 2018.

<sup>32</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>33</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>34</sup> DfT, [Transport Appraisal Guidance: An Overview of Transport Appraisal](#), January 2014

<sup>35</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>36</sup> DLUHC, DfT, HM Treasury, MHCLG, [Small scheme appraisal toolkit user guide](#), 11 June 2021.

<sup>37</sup> DfT, [Active Mode Appraisal Toolkit User Guide](#), May 2020.

phasing is required to ensure that the most effective development of the transport system.<sup>38</sup>

Monitoring and evaluation should be used at all stages of a project from development and planning through to after its implementation. The Green Book outlines a cyclic framework, known as ROAMEF (Rationale, Objectives, Appraisal, Monitoring, Evaluation and Feedback).<sup>39</sup> According to the DfT's guidance, it is also important to evaluate whether the project is being delivered on time and within budget, and how successful the intervention is at meeting the objectives it was designed to deliver. There is no specific guidance within TAG for monitoring and evaluation, although it does suggest that the Magenta book offers suitable advice.<sup>40</sup>

### Box 1: Local/Regional Scheme Monitoring

The DfT has specific guidance for how it monitors Local Authority Major Schemes.<sup>41</sup> This outlines three levels of monitoring and evaluation:

- **Standard Monitoring:** this applies to all schemes and involves monitoring and reporting on progress against a standard set of measures.
- **Enhanced monitoring:** Enhanced monitoring includes further measures for schemes costing more than £50 million, or which have significant impact on certain indicators, such as the environment.
- **Fuller evaluation:** this involves schemes requiring significant investment, or which are potentially contentious or risky.

Areas that receive Investment Funds as part of Single Pot funding are evaluated by an independent evaluation panel that assesses the impact of the investments on economic growth every five years.<sup>42</sup>

Each Local Enterprise Partnership (LEP) should have an Accountable Body, which is responsible for ensuring the proper administration of public funding within the LEP.<sup>43</sup> The Accountable Body has three main functions:

- Holding public funds from Government on behalf of the LEP;
- Ensuring public funds are being used with propriety and regularity whilst delivering value for money; and

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<sup>38</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>39</sup> HM Treasury, [The Green Book](#), 3 December 2020.

<sup>40</sup> DfT, [Transport Appraisal Guidance: The Transport Appraisal Process](#), May 2018.

<sup>41</sup> DfT, [Monitoring and Evaluation Framework for Local Authority Major Schemes](#), 20 September 2012.

<sup>42</sup> Ministry of Housing, Communities and Local Government, [National Local Growth Assurance Framework](#), v4, 2 September 2021

<sup>43</sup> Ministry of Housing, Communities and Local Government, [National Local Growth Assurance Framework](#), v4, 2 September 2021

- Providing technical advice, such as pertaining to relevant legislation, risk management or the drafting of funding agreements/contracts.

Further, the LEP should also appoint a Section 151 (or equivalent) officer, typically known as a Chief Financial Officer, who has oversight and responsibility of the financial affairs of the LEP.<sup>44</sup>

Additionally, the LEP should have a process in place to monitor projects which have received funding. Where appropriate, these should consider the guidance in the Magenta Book and specific DfT guidance for transport schemes. It should also be involved in the recovery of funding in the case of non-compliance, misrepresentation or under-performance.<sup>45</sup>

### The Magenta Book

The Magenta Book provides further guidance on the evaluation of public spending in Government, which aligns with the Green Book and builds on the ROAMEF framework.<sup>46</sup> The evaluation of projects should cover three main areas:

- how the intervention was delivered (the process);
- what difference it has made (the impact); and
- whether it was a good use of resources (the value-for-money).

It is worth noting that the exact evaluation will be dependent on the project. According to the Magenta Book, a good evaluation is one that is “fit for purpose”,<sup>47</sup> in that it reflects the scale of investment, the needs of decision makers and external scrutiny. This is determined through scoping the evaluation against the intervention and designing a suitable evaluation approach using relevant methods. The outcomes should not only influence the existing project, but also be disseminated to support other projects.<sup>48</sup>

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<sup>44</sup> Ministry of Housing, Communities and Local Government, [National Local Growth Assurance Framework](#), v4, 2 September 2021

<sup>45</sup> Ministry of Housing, Communities and Local Government, [National Local Growth Assurance Framework](#), v4, 2 September 2021

<sup>46</sup> HM Treasury, [The Magenta Book](#)., 1 April 2020.

<sup>47</sup> HM Treasury, [The Magenta Book](#), p 16., 1 April 2020.

<sup>48</sup> HM Treasury, [The Magenta Book](#)., 1 April 2020.

## 2.3

## Transport Business Case Model

A key part of the appraisal process is the development of a transport business case. In 2010, the Department for Transport introduced the Transport Business Case Model, which is based on the Green Book and the HM Treasury’s supplementary guidance on business cases.

### Key parts of a transport business case

Transport business cases follow a five-case model, which includes: a strategic case, an economic case, a financial case, a commercial case and a management case.<sup>49</sup> Each of these cases becomes more complete as the business case progresses from a Strategic Outline Business Case to a Full Business Case.<sup>50</sup>

Below is a brief summary of what each dimension entails.

- **Strategic case:** a strategic case sets out the case for change, including the “strategic fit” of the proposal, namely how it supports the Government or organisation’s (e.g. local authority) priorities and ambitions.<sup>51</sup>
- **Economic case:** the economic case demonstrates the project’s value for money, including an appraisal of the costs and benefits of different options. All the economic, environmental and social impacts of a proposal should be incorporated into a value for money assessment.<sup>52</sup>
- **Financial case:** the financial case covers how affordable the proposal is and how it will be funded. For example, the financial case covers how much funding is needed for the project each year, how is it going to be paid for, which organisation(s) is going to pay for it and what financial risks are involved.<sup>53</sup>
- **Commercial case:** the commercial case covers the commercial viability of the project as well as the proposed procurement strategy. For example, the commercial case sets out plans for the allocation and transfer of risk between parties involved in the project, the timescales of the contracts involved and how long the project will take to implement.<sup>54</sup>
- **Management case:** the management case is used to assess whether the project is deliverable, including how the benefits in the strategic and economic case will be realised. This aspect of a business case

<sup>49</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>50</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>51</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>52</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>53</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>54</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

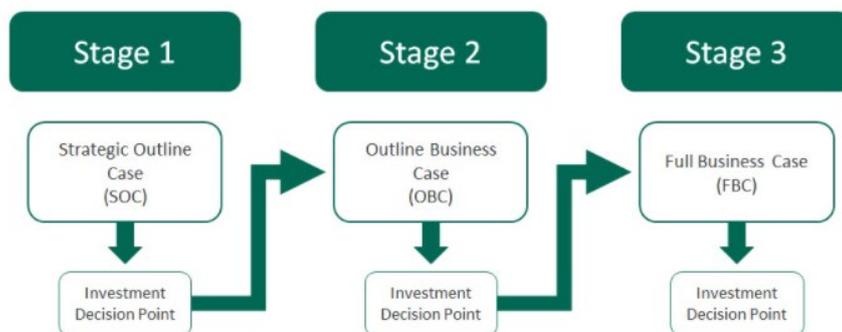
covers the governance and risk management of the project, the roles and responsibilities of different parties involved, such as the DfT and its delivery partners, and the key metrics, including any targets, desired outcomes and milestones.<sup>55</sup>

The financial, commercial and management case for a project signal whether a project is ready to proceed. A paper by the Institute for Transport Studies at the University of Leeds explains that these cases “provide a ‘go’, ‘not ready’ or ‘no go’ signal.”<sup>56</sup> The strategic case and economic case for a project act in a different way, as they can be used to help ministers prioritise projects, namely “how far up a list of projects which are ready to proceed a scheme should rank.”<sup>57</sup>

## The development of transport business cases

Development of the project business case typically consists of three stages: a Strategic Outline Business Case (SOC), an Outline Business Case (OBC) and a Full Business Case (FBC).<sup>58</sup> However, according to the DfT, some larger or more complex schemes may require additional steps, whereas straightforward proposals may require less.<sup>59</sup> The business case is reviewed at the end of each stage at what is referred to as an Investment Decision Point. The diagram in the box below provides an overview of the business case process.

**Picture 2: Overview of the business case process**



DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>55</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>56</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>57</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>58</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

<sup>59</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021]

If the investment is greater than the DfT's Delegated Expenditure Limit, or is a sensitive part of a high-profile programme, it is also assessed by HM Treasury through the Treasury Approval Process (see Section 2.4).<sup>60</sup>

The stages in the business case development process are described below:

- Before a business case is developed, the DfT advise that a strategic assessment should be carried out. A strategic assessment should assess the strategic context for the proposal, such as how it aligns with national, regional and local objectives, consider the implications the project could have at a local level, such as how it fits with other existing or future initiatives locally and the impact it could have on certain groups. The DfT also advise that this assessment should identify the problems that need to be solved and what a transport intervention is best placed to solve them.<sup>61</sup>
- **Stage 1: The Strategic Outline Case (SOC).** An SOC explains the rationale for the proposal, including its “strategic fit”. For example, how investment in the project will help achieve organisational priorities and wider government policies. SMART objectives for the project are set at this stage and a long list of options are filtered through to shortlist those viable options that warrant a more detailed assessment in an Outline Business Case (Stage 2). Within the DfT, SOC's are submitted to the DfT's Investment Committee, who make recommendations to ministers and give initial agreement for the project to move to the next stage.<sup>62</sup>
- **Stage 2: The Outline Business Case (OBC).** The OBC is used to check and reaffirm the conclusions made in the SOC and to undertake detailed assessments of the viable options, such as economic and financial appraisals, to identify a preferred solution. The commercial aspects of the project are considered in more detail at this stage as well as how the project will be managed. The OBC is evaluated by the Investment Committee, who, unless requiring assessment by HM Treasury (e.g. if the expenditure exceeds the Departmental Expenditure Limit or DEL), make recommendations to ministers.<sup>63</sup>
- **Stage 3: The Full Business Case (FBC).** The FBC confirms the work, and conclusions, of the SOC and OBC. A formal procurement process is undertaken to check the values used in the preferred option. The FBC is considered by the Investment Committee, who make a recommendation

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<sup>60</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021].

<sup>61</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021].

<sup>62</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021].

<sup>63</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021].

to ministers. Ministers then make the final decision as to whether to implement the project.<sup>64</sup>

## 2.4 Major Projects Review

Large scale initiatives aimed at modernising and strengthening infrastructure in the UK are known as major projects.<sup>65</sup> Major transport projects include Crossrail, Thameslink, HS2, the Lower Thames Crossing, and the A303 (Stonehenge).<sup>66</sup> Major projects are subject to additional approval processes and checks from the Treasury and the Infrastructure Project Authority.

### HM Treasury approval

Major projects that qualify for Treasury approval include ones which:

- are above delegated authority limits;
- could lead to breaches of departmental expenditure limits, administration cost limits, or estimates provisions;
- involve contractual commitments to spend significant amounts in years beyond the current plans;
- could set a potentially expensive precedent;
- are novel and contentious, or could pose risks to the public, or which could have significant repercussions;
- require primary legislation; or
- are statutorily required to have Treasury consent.<sup>67</sup>

The Treasury approval process typically follows a similar process to those used in the development of transport business cases. For example, Treasury approval can be required at an early stage before a business case is developed as well as at the three stages in the business case development process.<sup>68</sup>

### Infrastructure Project Authority (IPA)

The Infrastructure and Projects Authority (IPA) oversees the Government Major Projects Portfolio (GMPP), with the aim of ensuring that “major projects of all types are delivered efficiently and effectively”.<sup>69</sup> The likelihood of

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<sup>64</sup> DfT, [Transport business case guidance](#), 23 August 2021, accessed: [7 December 2021].

<sup>65</sup> Institute for Government, [Major projects in government](#), 24 July 2020, accessed: [8 December 2021]

<sup>66</sup> DfT & IPA, [DfT Government Major Projects Portfolio data](#), 2021, 15 July 2021.

<sup>67</sup> HM Treasury, [Treasury approvals process for programmes and projects](#), 11 November 2016.

<sup>68</sup> HM Treasury, [Treasury approvals process for programmes and projects](#), 11 November 2016.

<sup>69</sup> IPA, [About the IPA](#), September 2020.

projects achieving their objectives as planned is assessed and given a RAG (Red/Amber/Green) rating.<sup>70</sup>

The IPA assurance process involves a series of ‘Gate Reviews’:

- **Gate Review 0: Strategic Assessment.** The Gate Review 0 is used to take an overall view of a programme, including sub-programmes or projects. As part of this review, the IPA assesses the outcomes and objectives of a project and the potential for success. For instance, it will look at the potential for success in the context of wider government policies and examine the interdependencies that exist with other projects, including those delivered by other bodies. The IPA also examine the arrangements for identifying and managing risk, whether sufficient resources, including funding, is available and how performance is monitored. The IPA also look at the leadership and management of the project.<sup>71</sup>
- **Gate Review 1: Business Justification.** This review evaluates the SOC to determine whether the scope of the project is clear and achievable, and the likelihood of delivery against the requirements.<sup>72</sup>
- **Gate Review 2: Delivery Strategy.** At this stage, the IPA investigates the OBC and plans to deliver the project. It aims to determine the project’s viability, potential for success and value for money. The IPA will look to assess whether the plans for the project right through to completion are realistic. The IPA will look at the various procedures and controls (e.g. financial controls) in place to identify risk and manage performance.<sup>73</sup>
- **Gate Review 3: Investment Decision.** At this stage, the IPA investigates the FBC and the governance arrangements for investment decisions. For example, the IPA will check statutory and procedural requirements have been followed throughout the procurement process. This review is used to assess whether the project remains necessary and can be delivered within the proposed budget and timescale. The Gate Review will also assess whether plans to implement the project are robust.<sup>74</sup>

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<sup>70</sup> Ratings used in the IPA evaluation as to whether successful deliver of the project is possible are: Green (highly likely), Amber/Green (probable), Amber (feasible, but significant issues requiring attention exist), Amber/Red (in doubt, with major risks or issues requiring urgent attention), Red (appears unachievable, with major issues that appear unmanageable or unresolvable).

<sup>71</sup> IPA, [Gate Review 0: Strategic Assessment](#), 15 July 2021.

<sup>72</sup> IPA, [Gate Review 1: Business Justification](#), 15 July 2021.

<sup>73</sup> IPA, [Gate Review 2: Delivery Strategy](#), 15 July 2021.

<sup>74</sup> IPA, [Gate Review 3: investment decision guidance](#), 15 July 2021.

- **Gate Review 4: Readiness for Service.** This Gate Review explores the readiness of an organisation, and its delivery partners or service providers, to move from a project specification to the implementation of a project.<sup>75</sup>
- **Gate Review 5: Operations Review and Benefits Realisation.** This review aims to confirm that the project is performing as outlined in the Business Case. This Gate Review is usually held just before business-as-usual operation and is typically repeated several times over the operational life of the project.<sup>76</sup>

The relations between the processes for a transport business case and those implemented for major projects are outlined in .

**Table 1: Comparison between Transport Business Case and Major Projects Review**

Transport Business Case	Activity	IPA Assurance Process
Preliminary Research	Defines the strategic context for the project, including its alignment with national, regional and local objectives, and identifies issues.	Gate Review 0: Strategic Assessment
Strategic Outline Case	Defines the strategic fit of the project, along with a series of SMART objectives the project should meet and a longlist of potential options.	Gate Review 1: Business Justification Evaluates the SOC ensure the scope of the project is clear and achievable.
Outline Business Case	Detailed reassessment of shortlisted options. The FBC sets out how successful delivery could be achieved.	Gate Review 2: Delivery Strategy  The IPA examines the OBC and plans to deliver the project, with a view to understanding the project’s viability, potential for success and value for money.
Full Business Case	Verifies the work of the SOC and OBC. with a formal procurement process undertaken to check the values in the models.	Gate Review 3: Investment Decision Analyses the FBC to verify project necessity, and has suitably robust implementation plans.

Source: HM Treasury, Treasury approvals process for programmes and projects, 11 November 2016

<sup>75</sup> IPA, [Gate Review 4: Readiness for Service](#), 15 July 2021.

<sup>76</sup> IPA, [Gate Review 5: Operations Review and Benefits Realisation](#), 15 July 2021.

## 3 Transport appraisal: benefits, limitations and proposed reforms

### 3.1 Benefits of transport appraisal processes

The main benefit of the transport appraisal process is its consistency. The process can be applied to projects of varying sizes across all modes of transport.<sup>77</sup> The process has also endured. The methods the DfT use to appraise projects today have a lot in common with those used in the 1960s.<sup>78</sup><sup>79</sup> <sup>80</sup>Over time incremental changes have been made to these methods.<sup>81</sup> Technical changes, for example, have been made to monetise certain environmental impacts or to represent changes to how travel time is valued.<sup>82</sup> However, the methods have also adapted to changes in policy. For example, the appraisal process was updated to reflect the agglomeration benefits transport can bring to urban areas, which previous methods failed to capture.<sup>83</sup> According to the Institute for Transport Studies, the methods have:

lasted because, while the principles underlying them remain unchanged, the methods themselves have been adaptable and flexible enough to respond to new policy concerns.<sup>84</sup>

The approach outlined within the DfT's Transport Appraisal Guidance (TAG) is well regarded internationally. For example, the Institute for Government (IfG) note how it has helped inform transport appraisal across countries in the OECD, the Organisation for Economic Co-operation and Development.<sup>85</sup> According to the Institute for Transport Studies, while there are international

<sup>77</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>78</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>79</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>80</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>81</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>82</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>83</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>84</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>85</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

variations in the methods used to appraise transport projects, the similarities outweigh the differences.<sup>86</sup>

## 3.2 Limitations and challenges with the transport appraisal process

### Forecasts and modelling

#### Values used in transport forecasts and modelling

One of the main problems with the appraisal process, especially the forecasts and modelling used as part of such appraisals, is that it favours certain criteria and undervalue others.<sup>87</sup> The Transport Planning Society, for example, has argued that valuations of savings in travel time tend to dominate and favour car drivers.<sup>88</sup> Even small savings in journey times can be estimated to produce significant benefits because projects are routinely assessed over a 60-year period.<sup>89</sup> The Transport Planning Society has pointed out that the Government's transport appraisal guidance has placed a higher value on the time of car journeys than on those made by bus, by bike and foot.<sup>90</sup> This can mean measures which can cause delays to car journeys, such as cycle lanes and bus lanes, score badly.

Another criticism is that the appraisal process is underpinned by forecasts and models which project past trends into the future. This means that the process results in projects which aim to change behaviour scoring badly too.<sup>91</sup> It also means the appraisal process can miss out those who need to travel, but are not able to, such as those who currently cannot afford to travel or live in rural areas.<sup>92</sup>

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<sup>86</sup> RAC Foundation, [Transport Policy, Appraisal and Decision-Making: Tom Worsley and Peter Mackie, Institute for Transport Studies, University of Leeds](#), May 2015

<sup>87</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>88</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>89</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>90</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>91</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>92</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

## Complexity

The models used to appraise transport projects are not always well understood by national and local decision makers. Decision makers often assume, for example, that these tools are there to support a specific decision, rather than to support unbiased analyses. Within local government, this typically results in a greater reliance on internal quality assurance undertaken by private sector consultants.<sup>93</sup> The IfG suggested that the expertise of those in decision-making positions at both local and national level should be increased, especially with regards to the principles underlying transport evidence, modelling, and appraisal.<sup>94</sup>

Typically, a single reference case is appraised providing a value for money assessment, which is coupled with sensitivity tests. This is partly due to the time and effort required to undertake the analyses for each potential scenario, but also to ensure that decision makers are presented with clear information from which a decision can be readily made.<sup>95</sup>

## Focus on the economic case and benefit-cost ratio

Of the five cases within the business case model, the economic case tends to attract the most attention, especially the cost-benefit ratio.<sup>96</sup> <sup>97</sup>According to the IfG, the benefit-cost ratio produced as part of an economic case can “dominate thinking” around a particular project.<sup>98</sup> This is a problem because not all aspects of a project can be easily monetised. The IfG that there was a common view among those with experience of central government that non-economic evidence carried less weight.<sup>99</sup> This trend, particularly a focus on quantifiable evidence, was evident in some other countries too.<sup>100</sup>

Recent reforms, such as changes to the Green Book, have aimed to place greater emphasis the strategic case for a project (see Section 2.1)

### Benefit-cost ratio

The benefit-cost ratio which provides an estimate of a project’s value for money, such as the estimated return on investment. A project with a BCR of 2:1 is considered to represent high value for money (e.g. a return of £2 for every £1 invested) whereas a BCR of 4:1 represents very high value for money (e.g. a return of £4 for every £1 invested).<sup>101</sup> Even though a variety of monetised and non-monetised benefits and costs are evaluated as part of an

<sup>93</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>94</sup> Institute for Government, [What’s wrong with infrastructure decision making](#), June 2017.

<sup>95</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>96</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>97</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>98</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>99</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>100</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>101</sup> RAC Foundation, [Transport Policy, Appraisal and Decision-Making: Tom Worsley and Peter Mackie](#), [Institute for Transport Studies, University of Leeds](#), May 2015

economic case, decision makers tend to focus a lot of attention on the BCR.<sup>102</sup>  
<sup>103</sup>

The IfG suggested that the DfT's approach to assessing value for money can reinforce this focus on the BCR, as one of the DfT's performance indicators is the amount it spends on projects with a BCR of over 2:1.<sup>104</sup> This influences decision-makers, such as those in local authorities, who can interpret this to mean that projects below this threshold are less likely to be funded.<sup>105</sup>

In practice, a high threshold operates as a "convenient barrier to stop the very worst performing schemes from obtaining funding."<sup>106</sup> For example, given the constraints on a local authority's resources, a council may filter out schemes they know are unlikely to achieve a high BCR.<sup>107</sup> Setting a high threshold, however, can create perverse incentives to game the system by finding ways of calculating a particular BCR, although, in practice, the IfG suggested this is only likely to be successful at the margins (e.g. where a proposals falls just below BCR of 2:1) because "no amount of fudged assumptions would be likely to turn a scheme with a very low BCR into one with a high one."<sup>108</sup> Alternatively, promoters of a scheme may present a project in a certain way, such as an economic or regeneration project rather than as a transport one, to achieve a high BCR.<sup>109</sup>

## Political factors

One of the challenges for the transport appraisal system is how it interacts with politics. According to the IfG, "political vision and decision making don't always align with objective transport appraisal. The idea of strongly evidence-based policy can sit uneasily alongside the notion of political visions for the transport system."<sup>110</sup> One criticism of the transport appraisal process is the extent to which it "encroaches too far on the discretion of democratically elected politicians to make choices on behalf of society."<sup>111</sup> One former political advisor who was interviewed by the IfG argued that:

Unlike some systems that can be said to have started out with democratic aims and then been institutionally captured, our transport appraisal system started

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<sup>102</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021;

<sup>103</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>104</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>105</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>106</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>107</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>108</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>109</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021

<sup>110</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021

<sup>111</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

out within institutional control and has from the start been designed so that institutions could to a large degree control it.<sup>112</sup>

Despite this, the Institute for Transport Studies suggested one challenge to the transport appraisal system is the desire for big announcements, such as on major infrastructure projects.<sup>113</sup> However, the Institute suggested that transport appraisal methods are generally better suited to incremental improvements where there can be a more developed understanding of the opportunity costs associated with a particular scheme; assessing the opportunity cost of potentially transformational projects can be hard to do.<sup>114</sup> Political parties and governments can be committed to particular project from an very early stage.<sup>115</sup> Based on interviews with civil servants, the Institute reported that deciding "something wasn't such a good idea after all is one of the most difficult things for decision-makers."<sup>116</sup> Political timing, elections and the parliamentary timetable can also affect the timescale for transport appraisal.<sup>117</sup>

## Decision-making is very centralised

At present the approach to transport appraisal is highly centralised whereby the DfT controls a lot of the funding for new transport infrastructure and sets the criteria for the other bodies, especially local councils, who access it.<sup>118</sup> In other countries, the IfG noted that local and regional governments have less need to seek central government funding, especially for smaller projects, because they have greater local funding.<sup>119</sup> Consequently, unlike in the UK, where the use of transport appraisal guidance is mandatory for most schemes, national appraisal guidance in Sweden, Holland and Germany is used infrequently or at a regional or local government's discretion.<sup>120</sup> This has benefits, for example, where a local government can pursue a project that might not otherwise have been funded, and disadvantages, where decisions can be made more the 'gut feeling' of decision makers.<sup>121</sup>

The Institute for Transport Studies suggests this centralised system means the that estimating the magnitude of benefits is prioritised over questions about

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<sup>112</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021

<sup>113</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>114</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>115</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>116</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>117</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>118</sup> RAC Foundation, [Transport Policy. Appraisal and Decision-Making: Tom Worsley and Peter Mackie. Institute for Transport Studies, University of Leeds](#), May 2015

<sup>119</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>120</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>121</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

"precisely how and to whom the benefits would materialise."<sup>122</sup> The Institute also argued that in terms of transport it can be particularly difficult to decide "what is legitimately local and what is national" and the various circumstances in between.

## Transparency

It has been noted that the way that policy or investment decisions are made is not sufficiently transparent, with a perception of a bias to more developed areas. Following its review of the Green Book, the Government committed to publish business cases for projects within the GMPP. However, the IfG argued that all businesses cases should be published to improve the scrutiny and transparency of transport projects.<sup>123</sup>

## Evaluation

Transport projects are not consistently evaluated, either in local or central government.<sup>124</sup> According to the IfG, this is particularly the case in local government because the ad hoc funding councils depend on to fund transport projects "only last as long as the project", which disincentivises them from evaluating projects.<sup>125</sup> The IfG noted that evaluation within the DfT has varied between policy areas. For example, in some areas, such as cycling and walking, there has been a consistent focus on evaluation which has helped build the evidence base, but this is not true of all areas.<sup>126</sup> One commonly cited example of a good approach to evaluation is National Highways' Post-Opening Project Evaluations (see Box 2)

Evaluating transport projects can be difficult because the benefits are spread across the economy. The benefits, according to the IfG, are "gradual and can be hard to detect."<sup>127</sup> For example, with transport projects it can be difficult to establish a counterfactual to assess what might have happened without the intervention.<sup>128</sup>

The IfG also cited numerous systemic reasons as to why transport projects are not consistently evaluated. For example, the IfG noted there is a lot of focus within the transport sector on making the case for a particular project. According to the IfG, "interest tends to peak between when decisions to progress schemes or policies are made and when a scheme is built or policy implemented."<sup>129</sup> As projects can take a long time to implement or build, the ministers and senior leaders responsible for them are unlikely to still be in post once the project is finished, which means there can be less political

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<sup>122</sup> RAC Foundation, [Transport Policy, Appraisal and Decision-Making: Tom Worsley and Peter Mackie, Institute for Transport Studies, University of Leeds](#), May 2015

<sup>123</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>124</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>125</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>126</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>127</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>128</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>129</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

interest evaluation.<sup>130</sup> The IfG also noted that "there is limited external scrutiny outside the DfT to drive evaluation forward."<sup>131</sup>

## Box 2: Post Opening Project Evaluations (POPE)

National Highways (previously known as Highways England and the Highways Agency) has undertaken Post Opening Project Evaluation (POPE) on all major schemes since 2002, with the aim of assessing whether they have been delivered as estimated and subsequently provided the anticipated value-for-money.<sup>132</sup>

The assessment is typically undertaken twice, once after the scheme has been open for traffic for one year, and the second five years after opening. However, it is a resource intensive process that can take nine months.<sup>133</sup>

A meta-analysis is also undertaken periodically to evaluate trends across the programme. The IfG<sup>134</sup> and NIC<sup>135</sup> have praised POPE, noting that it has led to a standardised process that feeds back into pre-project appraisal, increasing the accuracy of cost estimates.

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<sup>130</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>131</sup> Institute for Government, [How governments use evidence to make transport policy](#), February 2021.

<sup>132</sup> DfT, [Evaluation Insight Paper: Post Opening Project Evaluation of Major Schemes](#), 1 April 2019.

<sup>133</sup> ORR, [Reviewing Highways England's evaluation of its capital investment programme's benefits: Final Report](#), ORR/CT/19-20, May 2020.

<sup>134</sup> Institute for Government, [What's wrong with infrastructure decision making?](#) p 30., 29 June 2017.

<sup>135</sup> National Infrastructure Commission, [National Infrastructure Assessment 1](#), p101., July 2018

## 3.3 Possible reforms to transport appraisal

After almost 50 years of incremental adaptations, the Institute for Transport Studies, in 2015, suggested these methods had reached an “intellectual crossroads.”<sup>136</sup> Some have called for fundamental reform of these processes to reflect the current priorities of the transport system. In October 2020, the Transport Planning Society argued that there needed to be fundamental reform of the Government’s transport appraisal methods because they do not reflect the current priorities of the transport system.<sup>137</sup>

### Move from a ‘predict and provide’ to a ‘vision and validate’ model

The Transport Planning Society also suggest that an alternative to a ‘predict and provide model’, where, for example, new infrastructure is built to cope with forecasts in demand, is a “decide and provide” or “vision and validate” approach. The latter involves setting objectives and a vision of the future, which is then used to assess the different transport options.<sup>138</sup>

### Greater weight to environmental factors

The Transport Planning Society also suggested that another potential reform to the transport appraisal process could be to introduce a ‘pass or fail test’ for projects, based on the carbon emissions they generate.<sup>139</sup> For example, such as test, they suggest, could act as a “showstopper” so that any project which leads to an increase in carbon emissions would be rejected at an early stage before a detailed appraisal is conducted.<sup>140</sup>

### Devolution

Another challenge for the transport appraisal system is how the approach reflects the devolution agenda. The Institute for Transport Studies posed a

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<sup>136</sup> RAC Foundation, [Transport Policy, Appraisal and Decision-Making: Tom Worsley and Peter Mackie, Institute for Transport Studies, University of Leeds](#), May 2015

<sup>137</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>138</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>139</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>140</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

series of questions about the implications devolution has for the transport appraisal process, such as:

- the balance of funding from national and local sources;
- the degree of flexibility local areas have to set transport objectives;
- accountability for the delivery of projects;
- the processes for mediating between local and national interests, including national priorities which involve delivery at a local level; and
- the capability and capacity that exists locally to appraise projects, including the role of central government to support and guide local areas.<sup>141</sup>

The Institute for Transport Studies suggests that devolving responsibility for transport appraisal would need to reflect differences in the structure and capacity of local government and regional transport bodies that exist across the country.<sup>142</sup> The Transport Planning Society favoured delegating decisions to the "lowest level of government possible so that local people with local knowledge can decide their priorities with appropriate funding."<sup>143</sup>

## 3.4 Learning lessons from major projects

Despite the best efforts of decision makers and contractors, the initial forecast does not always match the actual incurred costs. The IPA recently noted that overspending or late delivery has affected 75% of major programmes across the private and public sector.<sup>144</sup> Nevertheless, some are anticipated to be delivered as planned, such as the A12 Chelmsford to A120 widening project and the Great Western Route Modernisation.<sup>145</sup>

The DfT, supported by the IPA, have evaluated major projects to understand what was done well, and where improvements were required.<sup>146</sup> This outlined 24 lessons across five themes:

- Having clear accountability;
- Exhibiting good behaviours is more important than processes;

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<sup>141</sup> RAC Foundation, [Transport Policy, Appraisal and Decision-Making: Tom Worsley and Peter Mackie, Institute for Transport Studies, University of Leeds](#), May 2015

<sup>142</sup> RAC Foundation, [Transport Policy, Appraisal and Decision-Making: Tom Worsley and Peter Mackie, Institute for Transport Studies, University of Leeds](#), May 2015

<sup>143</sup> Transport Planning Society, [State of the Nations: Transport planning for a sustainable future](#), October 2020

<sup>144</sup> Public Accounts Committee, [Oral evidence: Lessons from major projects and programmes](#), HC 694, Q3, 30 November 2020.

<sup>145</sup> IPA, [Annual Report on Major Projects 2020-21](#), 15 July 2021.

<sup>146</sup> DfT, IPA, [Lessons from transport for the sponsorship of major projects](#), 25 April 2019.

- Controlling schedule and benefits as well as costs;
- Mitigating integration risks; and
- Exhibiting caution upon entry into service.

In response to the Public Accounts Committee's inquiry into Crossrail, the DfT outlined some of the steps it has taken to improve its management of major projects. For example, the DfT explained that it:

- has introduced measures to review and demonstrate learning from projects;
- is adopting a new approach to governance to clarify accountability;
- has adopted new processes to incorporate uncertainty in estimations;
- is developing alternative approaches to systems integration; and
- is establishing clear accountability and consultation with delivery partners.<sup>147</sup>

Following their investigation into the failings of major projects, the Public Accounts Committee noted concerns regarding:

- value for money, particularly when delivery time constraints and process changes were also considered;
- a lack of transparency regarding the progress of government projects to Parliament;
- the independence and assurance processes of the IPA; and
- the skills and number of those leading major projects.<sup>148</sup>

The Government agreed with many of the PAC's recommendations.<sup>149</sup>

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<sup>147</sup> DfT, [Crossrail: A progress update, Twenty-Fourth Report of Session 2021-11 – recommendation 5](#), 30 November 2021.

<sup>148</sup> Public Accounts Committee, [Thirty-Ninth Report - Lessons from major projects and programmes](#), HC 694, 29 January 2020.

<sup>149</sup> Public Accounts Committee, [Government response to the Committee of Public Accounts on the Thirty-ninth report from Session 2019-21](#), 26 March 2021.

### Box 3: Approval and Funding for Crossrail

Crossrail is a new, high frequency, high capacity 100 km rail line through central London, which will link Reading and Heathrow outside West London with Abbey Wood in East London and Shenfield in Essex. Originally planned to open in 2018, the project has been delayed with anticipated opening in the first half of 2022. This has led the costs to increase from £14.8 billion to £18.7 billion.<sup>150</sup>

#### Appraisal

In 1974, the London Rail Study called for an assessment of schemes to improve links between the East London and West London.<sup>151</sup> This was reviewed by the Shadow Strategic Rail Authority in 1999,<sup>152</sup> with TfL and DfT forming Crossrail Limited (formerly Cross London Rail Links Limited) in 2001, a company that aimed to design and develop the Elizabeth Line.

The appraisal process followed that outlined in TAG. A long list of options was identified through desk study and assessed against the costs, the benefits, the environmental impact, statutory consents, and the engineering and operational feasibility. Five of these were then shortlisted, consulted on with stakeholders, and appraised in more detail. The business case was presented to the DfT in 2003, alongside a public consultation. Changes to the business case led to a second public consultation in Autumn 2004, with further meetings in January 2005.<sup>153</sup> Royal assent for the [Crossrail Act 2008](#) was obtained on 22 July 2008.<sup>154</sup>

#### Funding

Following the appraisal process, a funding envelope of £14.8 billion was agreed in the Comprehensive Spending Review of October 2010. This increased to £17.6 billion in December 2018, with an additional £1.1 billion forecast in August 2020. In December 2020, the Government agreed a deal with TfL for the £825 million to deliver Crossrail, with a final cost £18.7 billion.<sup>155</sup> These delays are estimated to have cost £1.5 billion in revenue, in 2020 prices, with a phased opening now anticipated between the ‘first half of 2022’ and May 2023.<sup>156</sup>

#### Delays and public scrutiny

<sup>150</sup> London Assembly, [Crossrail: The project at a glance](#), 2020.

<sup>151</sup> Crossrail, [Crossrail – from its early beginnings](#), accessed: [5 January 2021].

<sup>152</sup> sSRA, [London East-West Study](#), November 2000.

<sup>153</sup> Bennett S., Crossrail project to deliver London’s Elizabeth line: from options to parliamentary bill, **170** (6) 3-9, 2017, <https://doi.org/10.1680/jcien.17.00006>

<sup>154</sup> Bennett S., Crossrail project to deliver London’s Elizabeth line: the parliamentary bill process, **170** (6), 10-14, 2017. <https://doi.org/10.1680/jcien.17.00014>

<sup>155</sup> London Assembly, [Crossrail: The project at a glance](#), 2020.

<sup>156</sup> Crossrail Ltd., [Crossrail Project Update](#), 20 December 2021.

In 2019, The London Assembly's Transport Committee and the Public Accounts Committee both raised concerns about the project.<sup>157</sup> <sup>158</sup> The Public Accounts Committee's report outlined how over-optimism, which had been prevalent throughout the project, had been "proved hugely damaging to the programme."<sup>159</sup> The PAC noted that Crossrail Limited's management of a contractors, whereby main works were delivered through 36 separate contracts, contributed to the cost increases and delays.<sup>160</sup>

The Public Accounts Committee raised concerns again in 2021,<sup>161</sup> related to the remaining works, long term benefits, particularly considering the impact of the pandemic on passenger numbers, communication with the public, and embedding lessons for future projects. The Government agreed with the recommendations of the committee,<sup>162</sup> whilst TfL outlined the anticipated time and costs of the remaining works.<sup>163</sup>

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<sup>157</sup> London Assembly Transport Committee, [Derailed: Getting Crossrail back on track](#), April 2019.

<sup>158</sup> Public Accounts Committee, [Completing Crossrail](#), 19 July 2019.

<sup>159</sup> Public Accounts Committee, [Completing Crossrail](#), 19 July 2019.

<sup>160</sup> Public Accounts Committee, [Completing Crossrail](#), 19 July 2019.

<sup>161</sup> Public Accounts Committee, [Crossrail: A progress update](#), 29 October 2021.

<sup>162</sup> Public Accounts Committee, [Treasury minutes: Government response to the Committee of Public Accounts on the Twenty Fourth report from Session 2021-22](#), 21 January 2022.

<sup>163</sup> Public Accounts Committee, [Correspondence from the Department for Transport and Transport for London, relating to the Committee's report Crossrail: A progress update, dated 30 November 2021](#), 6 December 2021.

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