



Department  
for Transport

# Joint Analysis Development Panel Annual Report 2017/18

**Moving Britain Ahead**

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Department for Transport  
Great Minster House  
33 Horseferry Road  
London SW1P 4DR  
Telephone 0300 330 3000  
Website [www.gov.uk/dft](http://www.gov.uk/dft)  
General enquiries: <https://forms.dft.gov.uk>



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# Forewords

Collaborating and engaging with our stakeholders is a fundamental part of DfT's approach to maintaining and developing our appraisal and modelling methods. The Joint Analysis Development Panel was established in 2015 to inject the latest academic thinking and expert advice into our work and forms a core part of our external engagement in this area.

During its third year of operation, the panel has continued to flourish, providing challenge and fresh insights across a wide range of topics. In particular, the panel has played a valuable role in shaping our early thinking on a new strategy for appraisal and modelling, highlighting the challenges facing us and identifying priority evidence needs. It has also influenced the development of road traffic scenarios and our analytical programmes on the use of scenarios to understand uncertainty and the treatment of housing in transport appraisal.

My colleagues and I would like to thank all of the panel members and, in particular, my co-chair, Professor Peter Jones, for their constructive challenge and open discussions. We look forward to building on this momentum over the coming year.



Amanda Rowlatt, Chief Analyst and Science Director

The Joint Analysis Development Panel has now completed its third year of operation, and is demonstrating its value to the work of the DfT and the wider transport policy making and professional communities. Several of the research priorities identified in previous years have now matured into successful projects which have informed and enhanced the work of the Department and its end users.

Our face-to-face meetings provide opportunities to review on-going initiatives and to engage in active debate about the future direction of DfT analysis, modelling and appraisal. In the last year we have increasingly looked at transport in its wider context, for example as an enabler to stimulate housing provision. And the non-DfT members of JADP are playing an increasing role in preparing material for discussion at our meetings.

None of this would be possible without a very collaborative and open environment for the exchange of views. I would like to thank all JADP members for their constructive engagement, and in particular for the leadership provided by my co-chair, Amanda Rowlatt, from the Department's side.

We have now established a clear role for the JADP and a strong momentum, and I look forward to building on this and working with colleagues over the coming year



Peter Jones, Director, Centre for Transport Studies, UCL  
Co-chair, Joint Analysis Development Panel

# Executive Summary

## Joint Analysis Development Panel

- 1 The Department for Transport (DfT) is committed to maintaining and developing our appraisal and modelling methods so that our evidence base remains best practice. Working collaboratively with academics and stakeholders is central to this ambition and the Joint Analysis Development Panel (JADP) forms a core component of our academic and professional engagement.
- 2 JADP was established in 2015 to provide expert advice to DfT on its modelling and appraisal methods and strategies. It brings together academic and professional experts with senior departmental analysts and is co-chaired by the Department for Transport's Chief Analyst and Science Director, Amanda Rowlatt, and Professor Peter Jones, Director of the Centre for Transport Studies, University College London.
- 3 The panel met five times in 2017/18 and provided advice and challenge on a broad spectrum of topics including development of DfT's National Transport Model, analysis to support the development of DfT's second Roads Investment Strategy and the joint Ministry of Housing, Communities and Local Government (MHCLG) and DfT housing and transport analytical programme.
- 4 The panel's impact has continued to grow this year and its influence has extended across a wide range of work programmes. It has helped to shape our priorities for future research, expose challenges and uncertainties with developing and presenting our work and ultimately helped us to build more confidence in our modelling and appraisal methods.
- 5 Notably, this year the panel has played a key role in developing our thinking around priorities for our new Appraisal and Modelling Strategy<sup>1</sup>. The panel's all day workshop in November, hosted by Transport Catapult, crystallised our views on the challenges facing appraisal and modelling and potential themes for the strategy. A subsequent discussion helped to refine the themes and highlight some priorities for our engagement with stakeholders.
- 6 This year, we are pleased to announce that the panel has been joined by Tom Worsley, ITS Leeds. Tom has a wealth of experience in transport modelling and appraisal that complements that of the other panel members.
- 7 We are grateful once again to all members for providing their time to attend meetings free of charge:
  - Peter Jones, Director, Centre for Transport Studies, University College London (co-chair)

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<sup>1</sup> <https://www.gov.uk/government/organisations/department-for-transport#consultations>

- Richard Batley, Professor of Transport Demand and Valuation and Director of the Institute for Transport Studies, University of Leeds
- Phil Goodwin, Emeritus Professor of Transport Policy, University College London and University of the West of England
- Glenn Lyons, Mott MacDonald Professor of Future Mobility, UWE Bristol and Mott MacDonald
- Anthony Venables, Professor of Economics, Oxford University
- Tom van Vuren, visiting professor ITS Leeds and Mott MacDonald
- Tom Worsley, ITS Leeds

8 Biographies of members can be found in Section 4.

9 We are also grateful to all the 'subject matter experts' who have attended meetings on areas of their expertise and provided insightful comments.

# 1. Introduction

## Background

- 1.1 This is the third annual report of the Department for Transport's Joint Analysis Development Panel. It covers the panel's activities from May 2017 to April 2018. This report summarises the outputs of our discussions and is being published in the spirit of openness and transparency.
- 1.2 DfT is committed to maintaining and developing our appraisal and modelling methods so that our evidence base remains best practice. Working collaboratively with academics and stakeholders is central to this ambition and the Joint Analysis Development Panel is an important element of our engagement with academics and professionals.

## Format of Meetings

- 1.3 The panel met five times during the year with meetings ranging from 2 hours to a full day workshop in November. Meetings have been structured around one or more substantive topics with Departmental analysts presenting papers for discussion, providing background information and posing key analytical questions. The panel has been augmented by a wider network of subject matter experts who have been invited to attend specific discussions.
- 1.4 Topics for discussion have been determined by DfT's priorities and suggestions from panel members. The topics for 2017/18 were:
  - National Transport Model Development, Testing, Transparency and Engagement
  - Communicating and Engaging with External Stakeholders
  - The Role of Analysis in the second Roads Investment Strategy
  - Road Demand Scenarios
  - Using Scenarios to reflect Uncertainty in Appraisal
  - DfT Regional Spending Analysis
  - Perceptions that DfT Appraisal System is Regionally Biased
  - Housing and Transport Analytical Programme
  - Evidence to Support Decision Making: Priorities for a new Analytical Strategy
  - Addressing Appraisal Criticisms
  - Developing a new Appraisal and Modelling Strategy
  - National Transport Model Development



## Impact of the Panel

- 1.5 The influence of the Joint Analysis Development Panel has continued to grow over its third year of operation as external panel members become more familiar with DfT's priorities and the panel as a whole with each other's work and expertise. The panel is now well established within DfT and has discussed topics brought by other analytical areas within DfT as well as topics that extend across other government departments.
- 10 The JADP discussion on scenarios and uncertainty helped to identify potential challenges we need to consider when developing scenarios, in particular the need for engagement with those who will be using the scenario outputs and the challenges around presenting results of scenario analysis to decision makers. This has shaped our approach to developing a proposal for testing the use of scenarios in the appraisal of major schemes. We have also sought more detailed strategic advice on the treatment of uncertainty in transport appraisal and modelling which we will use to inform our future research and development in this area.
- 11 JADP input on the treatment of housing in transport appraisal and support for the approach taken in WebTAG has enabled us to build greater confidence in our methods. On wider impacts, JADP has highlighted the uncertainties, challenges and also the importance of developing modelling capabilities to robustly capture transformational impacts such as new residential developments.
- 12 Discussions with JADP members have helped to shape the development of a new set of Road Traffic Forecasts. In particular, the panel's input has helped us consider how best to represent uncertainty in the forecasts and identify key areas where we needed to do more to provide greater transparency around the forecasts. This input is reflected in our forthcoming publication which evaluates previous forecasts, and which extends the scenario approach previously introduced in RTF 2015<sup>2</sup> to include a more comprehensive treatment of key uncertainties.
- 1.6 The panel has played a valuable role in shaping our early thinking on a new Appraisal and Modelling Strategy. Our current strategy, Understanding and Valuing the Impacts of Transport Investment, was launched in 2013 and has delivered significant improvements to the evidence base<sup>3</sup>. However, the appraisal environment has changed considerably during this time with implications for appraisal and modelling and we have launched a consultation<sup>4</sup> on our future priorities. More details on the panel's discussions on this topic can be found in paragraph 2.53 onwards.

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<sup>2</sup> <https://www.gov.uk/government/publications/road-traffic-forecasts-2015>

<sup>3</sup> <https://www.gov.uk/government/publications/transport-appraisal-in-investment-decisions-understanding-and-valuing-the-impacts-of-transport-investment>

<sup>4</sup> <https://www.gov.uk/government/organisations/department-for-transport#consultations>

## 2. Summary of Discussions

### Introduction

- 2.1 This section provides an overview of the topics discussed by the panel over its third year of operation. The panel has provided valuable comment and challenge on a diverse range of topics including development of DfT's National Transport Model, analysis to support the development of the DfT's second Roads Investment Strategy and the joint MHCLG and DfT housing and transport analytical programme. It has also played a key role in shaping our thinking around the challenges to appraisal and modelling over the next 5 years and the key themes for our new Appraisal and Modelling Strategy.

### Summary of meeting on 9th May 2017

- 2.2 Topics for this meeting included: "National Transport Model Development, Testing, Transparency and Engagement" and "Communicating and Engaging with External Stakeholders".

#### **National Transport Model Development, Testing, Transparency and Engagement**

- 2.3 DfT outlined work to recalibrate the National Transport Model to take into account the most recent trends in travel behaviour to meet the immediate policy testing needs in the Department. The update rebases the model to 2015, requires a full recalibration, and takes all relevant up-to-date evidence and data, whilst retaining the same functionality as the previous version of the model. Key highlights of the data updates are as follows:
- Updated behavioural parameters based on the National Travel Survey up to 2015;
  - Up-to-date traffic data from Roads Statistics and Highways England;
  - Updated forecasting assumptions, based on demand inputs from NTEM 7.2 and the latest (local) policy assumptions for roads, public transport and active modes where relevant;
  - A new Light Goods Vehicle (LGV) model which contains a deeper geographical disaggregation;
  - Up-to-date WebTAG<sup>5</sup> parameters such as value of time, fuel price and GDP forecasts;
  - Updated model interfaces and tools.
- 2.4 DfT set out plans to test the model after its delivery to gain a more holistic understanding of how the model responds to certain levers and stresses, and relay

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<sup>5</sup> <https://www.gov.uk/guidance/transport-analysis-guidance-webtag>

this kind of information to stakeholders as part of its commitment to transparency and engagement.

- 2.5 Many useful comments and suggestions were made by the panel in relation to how DfT should test and validate the recalibrated model. This included a discussion around the range of metrics that DfT should use to benchmark and sense check the model, including (but not limited to) travel time budgets, recent evidence on elasticities, using mobile phone data to compare against trip making behaviour and synthetic stress tests around key inputs. It was suggested that DfT focus on aspects of modelling that have performed less well in the past and separate out the impacts of changes in input data from changes in the calibration parameters.
- 2.6 DfT presented early work on developing scenarios to feed into its next published set of road traffic forecasts. There was discussion around the difference between a sensitivity test and a scenario and a suggestion that scenarios around a 'core' are actually sensitivity tests. The panel concluded that clarifying the selection of scenarios and the implications for how the results are interpreted will be crucial. When developing scenarios, it was suggested that it might be useful to consider consulting with a wider group of experts from other domains that indirectly or directly affect travel demand, particularly those involving technology.
- 2.7 DfT also updated the panel on its new National Transport Model which is in development and is expected to be ready for policy-testing in 2-3 years' time. The new model will use a similar conventional 4-stage structure to the current version and will benefit from much richer spatial disaggregation to allow more in-depth analysis of individual routes or areas. It will have a demand model with around 7,000 zones (rather than aggregated area types) and a detailed representation of the strategic road network, with associated assignment model (including most A and B Roads and some C and unclassified roads).

### **Communicating and Engaging with External Stakeholders**

- 2.8 One of the themes emanating from JADP's 2016 all day workshop was how DfT could best communicate modelling inputs, assumptions, weaknesses and outputs; as well as development plans and strategies. DfT presented a summary of its engagement and asked the panel for suggestions for priorities.
- 2.9 In order to maintain confidence that modelling, forecasting and appraisal evidence supporting decisions are fit for purpose, JADP agreed DfT's approach to engagement needs to:
  - help DfT develop robust and fit for purpose modelling and appraisal tools;
  - encourage the widespread and proportionate use of these modelling and appraisal tools;
  - build widespread acceptance and understanding of these tools and the analysis they produce to help drive decisions which are value for money.
- 2.10 It was noted that Transport Appraisal and Strategic Modelling (TASM) in DfT has a large, diverse network of stakeholders who have played a key role in shaping and developing the evidence base. TASM currently engages through a variety of media to communicate, including engagement events, attendance at seminars and conferences, publishing research and strategies. Various suggestions were made as to how TASM could further seek the views of stakeholders, for example, through a survey of users of WebTAG. It was noted that it is important to engage across the entire stakeholder audience.

- 2.11 The panel felt that scheme promoters are key stakeholders and there can be misperceptions about the use and interpretation of WebTAG and flexibilities within the guidance. It was suggested that DfT could try and publish case studies where WebTAG has been used imaginatively to illustrate what is possible.
- 2.12 In terms of communicating modelling issues, it was noted that there are differences between confidence in tools and confidence in results. Tools may be well understood but if results are counter-intuitive that has the potential to dent confidence in the model. It was suggested that communicating how DfT deals with uncertainty in the National Transport Model could be explicitly referred to in the objectives given the importance of this area.
- 2.13 Various practical suggestions for working more closely with academia were made, for example, in relation to the mechanics and structure of research, sharing topics of interest to DfT that could potentially be taken forward by MSc or PhD students and publishing working papers.

## Summary of meeting on 4th July 2017

- 2.14 Topics for this meeting included: "The Role of Analysis in the second Roads Investment Strategy", "Road Demand Scenarios" and "Using Scenarios to reflect Uncertainty in Appraisal". The panel was joined for this discussion by Professor Henry Overman, London School of Economics and Director of the What Works Centre for Local Economic Growth and John Collins, Technical Director, WSP.

### **The Role of Analysis in the second Road Investment Strategy (RIS2)**

- 2.15 DfT and Highways England (HE) explained that the main aim of the paper was to introduce the panel to the second Road Investment Strategy (RIS2) analysis that DfT and HE have been working on. RIS2 is a five year programme (2020-2025) and the analysis will cover capital enhancements, renewals, network operations, the development of a performance specification, funding requirements, an efficiency review, user analysis and RIS2 traffic scenarios (discussed below). Analysis is being carried out across Highways England, DfT, Office of Rail and Road (ORR) and Transport Focus.
- 2.16 There are a number of key challenges that RIS2 analysis needs to deal with:
- Much of the analysis is novel and complex. A great deal of work has gone into mitigating this by putting in place an effective assurance process and setting up an expert advice and challenge panel;
  - There are major uncertainties around traffic patterns in the future. This has been mitigated by commissioning Transport Appraisal and Strategic Modelling in DfT to develop scenarios;
  - Effective engagement with stakeholders is key and a number of activities including analytical engagement events have been put in place over the next six months.
- 2.17 The importance of understanding the network in totality was emphasised by panel members so that the opportunities and impacts across all elements of the network, including local roads and other modes, could be captured. Further, assumptions need to be consistent across all modes.
- 2.18 DfT explained that other modal options had been considered as part of the options generation and refinement process. The use of multi-criteria analysis had allowed a

long-list of options to be defined and then refined into more detailed options. The Road Traffic Models (RTMs) that had been developed also include the local road network, in addition to a representation of the rail network. There has been widespread internal engagement to try and maintain consistency across modes.

- 2.19 Questions were asked by the panel about how the modelling would capture induced demand and current trends, including falling trip rates. DfT explained that induced demand is modelled through the RTMs which have variable demand components. DfT also noted that the forthcoming POPE 2017 looks at modelled and realised induced demand and shows that it had actually been over-factored into Highways England's modelling. To assess unexplained trends, for example, falling trips rates, a number of scenarios are being run through the RTMs.
- 2.20 Some panel members questioned the ability of LUTI modelling to provide realistic results and reliable forecasts of economy effects. In particular, the issue of the impact of market structure and its effect on outcomes was raised. Panel members noted that different market structures can result in very different results (impacts varying by a factor of 10 was mentioned).
- 2.21 DfT explained that the Land Use Transport Interaction (LUTI) model builds on previous work commissioned by HS2 and the Department for the Northern Transport Strategy. This work has been used to sense check the LUTI modelling and identify areas for development. A number of refinements have been made and it has adopted some of the market functionality of a SCGE model. This first phase is really a test phase. Alongside the LUTI modelling, standard Wider Impacts in Transport Appraisal approaches will be applied including reduced form modelling of agglomeration.
- 2.22 To make the LUTI model as robust as possible, there has been a significant amount of underlying work going into the development of the wider economy analysis and the assumptions on which it is based. This has involved ongoing work with local partners to understand constraints and opportunities. The model will be tested and developed further over time and plans are being put in place to evaluate the outcomes from the model.

### **Road Demand Scenarios for the second Road Investment Strategy (RIS2)**

- 2.23 In 2015, the Department moved to a scenarios-based approach for its Road Traffic Forecasts (RTF15). The move was well received by external stakeholders and the wider public as it better represented underlying uncertainty in travel demand and enabled Ministers to make more informed decisions. As part of ongoing work within the Department, Transport Appraisal and Strategic Modelling outlined plans to extend that process by considering a wider range of underlying sources of uncertainty in the key drivers of road demand, which will ultimately be grouped in a set of scenarios.
- 2.24 There was general support from the panel for the use of scenarios and members made a number of points around the importance of communication in terms of how scenarios are labelled and clarity as to how the scenarios will be used.
- 2.25 It was suggested that the scenarios should incorporate a wide range of trends, including those relating to trip length, car ownership, changing behaviour of young people and technology development, including technologies outside the transport sector.
- 2.26 The different types of uncertainty should be explored in a systematic manner, covering uncertainty around data, parameters in the model as well as uncertainty in future trends. It was also suggested that DfT should look at different forecasting periods to see which schemes offer best value for money over different time periods.

2.27 It was emphasised that scenarios need to be plausible to ensure credibility for use in policy analysis.

### **Using Scenarios to Reflect Uncertainty in Appraisal**

2.28 Over recent years, DfT has been working to improve the analysis and presentation of uncertainty in both strategic forecasts and scheme appraisal, including through wider use of scenario and sensitivity analysis and better presentation of uncertainty in scheme business cases.

2.29 The Department's objective now is to embed a more consistent approach to the treatment of uncertainty in long-term demand forecasts which underpin scheme appraisal. The aim is to ensure investment decisions are underpinned by a common view of the core uncertainties that will affect future travel demand, bringing greater understanding of how resilient the overall investment portfolio is to future states of the world.

2.30 The need to be clear about how scenarios will be used in the decision making process was noted. It was felt that a standard set of scenarios could reduce the flexibility teams need to conduct specific scenario testing of individual projects and there are a number of ways in which scenarios can be used which would caution against a standard set. These include stress testing options, for example, what would we have to believe about the future not to proceed (though it was noted that the value of this is reduced if the options have already been narrowed down). Scenarios can also be used to inform 'big picture' issues such as funding, for example, if an option performs poorly under one scenario it may show that it would fail to get private funding.

2.31 It was suggested that DfT should use scenarios as part of option generation and development, i.e. at an early stage of the process so that options can be developed that deliver under different scenarios.

2.32 The panel agreed that engagement on scenarios is key to getting stakeholder buy in to the results and conclusions.

2.33 One idea put forward was for DfT to develop 'chapters' for key drivers containing evidence on uncertainty around them. These chapters could be updated each year summarising the latest evidence and position so everyone has a resource/document to refer to and use to develop scenarios appropriate to their project/scheme.

## **Summary of meeting on 3rd October 2017**

2.34 Topics for this meeting included: "DfT Regional Spending Analysis", "Perceptions that DfT Appraisal System is Regionally Biased" and the "Housing and Transport Analytical Programme".

### **DfT Regional Spending Analysis**

2.35 DfT provided a summary of methodological issues, potential approaches and alternative metrics for estimating regional transport spend over the next 5 years.

2.36 There was support for presenting a range of metrics. There is no single definition of fairness plus there's a distinction between precision and accuracy: focusing on 1 or 2 indicators would still rely on many assumptions so it may be better to look at multiple indicators.

2.37 The panel discussed the importance of selecting an appropriate denominator. Using resident population was not necessarily a good indicator of relative need and

alternatives were suggested, for example, daytime population or a metric that reflects who benefits from the expenditure. The panel also suggested the analysis should cover both demand-side and supply-side metrics. Specific suggestions for metrics included average journey times and connectivity measures.

### **Perceptions that DfT's Appraisal System is Regionally Biased**

- 2.38 There was broad agreement that there is no explicit regional bias in DfT's appraisal guidance. There is, however, a need to understand and address the reasons behind the perceptions.
- 2.39 The panel agreed that the key drivers of the concerns contributing to the perception that appraisal is spatially biased are not clear. It may relate to impacts on different population groups rather than being region specific.
- 2.40 It was suggested that capability to undertake appraisal and make a strong business case could be a factor, in particular the ability to undertake bespoke analysis. This was seen as a particular challenge for schemes aimed at reducing unemployment and social exclusion.

### **Housing and Transport Analytical Programme**

#### **Introduction**

- 2.41 The establishment of a DfT and MHCLG joint analytical work programme to support a joint approach to delivery of transport and housing, ensuring that transport does not constrain housing delivery, was introduced to the panel.
- 2.42 The programme was widely welcomed by the panel but concerns were raised around the risk of too narrow a focus on transport as a requirement to support housing whilst ignoring other services and amenities.
- 2.43 Panel members commented that more empirical evidence should be sought on transport projects and market prices (for example commercial rents, house prices) in urban areas rather than just land value and suburban housing effects as this will highlight distributional impacts.
- 2.44 It was suggested that it would be helpful to have a conceptual model in order to assess the practical implications for modellers and business case developers. It was highlighted that there is a chicken and egg situation with strategic schemes which may either drive housing or housing development which may later require transport investment.
- 2.45 It was felt by some members that current models weren't always appropriate for capturing housing impacts and there was a suggestion that there may be a need for external review.

#### **Capturing Housing Benefits in Transport Appraisal**

- 2.46 DfT outlined why land value uplift is treated as an indicative monetised benefit outside the benefit cost ratio and asked the panel for views on what considerations should inform its potential inclusion in the Benefit Cost Ratio (BCR).
- 2.47 The panel recognised the challenges around including land value uplift, attributed to transport projects, within BCRs given current methods and evidence. It was highlighted that if a scheme's business case was reliant on housing rather than more robust user benefits that this could generate a large delivery risk.

## **Plans to use East-West Rail as a Case Study**

- 2.48 DfT described its intention to use East West Rail as a case study to understand how best to apply new Wider Economic Impacts guidance on appraising large, transformational projects.
- 2.49 It was suggested that this presented an opportunity to undertake a proper 'before study' to monitor the construction and post-construction effects; and compare these with a set of forecasts at the start of the project. It was noted, however, that this would be a 10-15 year study and the challenges of commissioning such research were recognised.
- 2.50 It was suggested that the development of a narrative at the case study stage should produce quantities that are testable.
- 2.51 Challenges to its use as a case study were noted. It was suggested that the use of this scheme as a case study for housing and transport might be limited given that the scale and characteristics of this scheme are not likely to be typical of most developments. It was also highlighted that even a big strategic project remains reliant on local detail for its delivery.

## **Summary of workshop 7th November 2017**

- 2.52 The panel participated in an all day workshop in November, hosted by Transport Catapult in Milton Keynes. The aim of the day was to reach consensus on themes for DfT's next Appraisal and Modelling Strategy to focus on. The panel was joined for the day by Richard Bradley (TfN), Tim Gent (Atkins), Simon Nielsen (TfL) and Bryan Whittaker (WSP).

### **Evidence to support Decision Making: Priorities for a new Analytical Strategy**

- 2.53 DfT launched The Understanding and Valuing the Impacts of Transport Investment (UVITI) analytical strategy in 2013 which established five themes for our research to focus on: Economic Growth, Valuing Journey Improvements, Valuing Environmental and Health Impacts, Forecasting the Future Demand for Travel and the Treatment of Uncertainty.<sup>6</sup>
- 2.54 Significant progress has been made on each theme and DfT explained that, over the next year, it plans to update and refocus its analytical strategy to reflect the progress made and changes in the policy and appraisal environment.
- 2.55 The aim of the workshop was to reach consensus on five themes/priority areas for DfT's modelling and appraisal strategy to focus on and to identify some key work programmes within each theme.
- 2.56 DfT presented an update on the transport policy environment, setting out the economic, social and political context and highlighting DfT's Transport Investment Strategy, the development of the Industrial Strategy and the Housing White Paper as key policy developments. The panel also heard from Tim Gent about challenges within the transport modelling profession and the need for proportionality when considering further enhancements to WebTAG.
- 2.57 In advance of the away day, DfT had asked attendees to submit their top one or two challenges for modelling and appraisal over the next 3-5 years. There was a large

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<sup>6</sup> <https://www.gov.uk/government/publications/transport-appraisal-in-investment-decisions-understanding-and-valuing-the-impacts-of-transport-investment>



amount of consensus which allowed five potential themes to be put forward for discussion. The five themes were:

- Uncertainty;
- Modelling and appraising transformational schemes;
- Extending appraisal framework to capture more impacts;
- Exploiting new technology to develop modelling and appraisal tools and user needs;
- Practitioner needs.

2.58 The importance of communication and continuing engagement was emphasised throughout the discussion. The following points were also made:

### **Uncertainty**

- 2.59 There's a need to understand the robustness of different processes for capturing uncertainty and to be able to identify the most appropriate. We need to understand how and why travel demand is changing and implications for robustness of forecasts and results.
- 2.60 It was suggested that the strategy should include consideration of how best to use scenario planning to inform decision making. Decision makers need information about whether a scheme is robust to different levels of uncertainty. There is a risk of narrowing down scenarios too quickly and hiding uncertainty.

### **Modelling and Appraising Transformational Schemes**

- 2.61 It was noted that there is a lack of evaluation evidence as to the effects transport investments can have on transforming economic performance and a lack of common understanding of what is meant by a 'transformational scheme'. To better understand the transformational impacts of transport, it was suggested that DfT should focus on developing case studies which contain an historical analysis of how an area developed over time and the policy context. When developing case studies, DfT should look for international examples of transformational schemes. It was also cautioned that there is a risk that case studies are considered anecdotal and not robust enough to inform appraisal.
- 2.62 It was suggested that with an increasing focus on transformational schemes, there is a need for a wider piece of work which aims to understand the way people live and work. This would not directly impact on development of the guidance but provide better understanding of the context in which transformational schemes may have impacts. For example, one aspect of this could be getting a better feel for what we mean by an 'integrated labour market'.

### **Extending the Appraisal Framework to Capture more Impacts**

- 2.63 The scope of policy requirements is significant: there is a need to look cross-department, cross-discipline and cross-sector. The transport policy landscape is rapidly changing, with issues surrounding cities and devolution becoming increasingly important. These include an emphasis on local impacts of investment.
- 2.64 It was noted that it can be challenging to capture all the relevant impacts for all scheme types. There is a desire to incorporate more impacts into WebTAG, however, there is a need to avoid disproportionate effort so impacts need to be prioritised.
- 2.65 One of the challenges the discussion exposed was how to balance local and national interests when appraising schemes and taking investment decisions.

## **Exploiting New Technology to Develop Modelling and Appraisal Tools**

- 2.66 Like any data source, 'big data' has strengths and weaknesses which need to be understood. Big data can be useful for signalling/providing real time traffic data, however, its use for transport forecasting is much less clear. One issue is that big data is continuously changing, which is out of DfT's control, therefore it is difficult to establish trends.
- 2.67 It was noted that transport planning represents only a tiny proportion of the market for mobile data so it is not clear what incentive mobile phone operators would have to improve or change the way in which they collect data.

## **Practitioner Needs**

- 2.68 There has been an increase in demand for transport modelling in recent years, however, there is a shortage of modellers with the right skills. There is a retention issue in that a relatively high number of junior practitioners move away from the modelling profession and experienced modellers tend to be highly specialised.
- 2.69 Proportionality is important: too many modelling requirements can create complexities, too little can create poorly supported schemes. There needs to be a balance between research and application of WebTAG.
- 2.70 It was suggested that it would be useful to have a causal chain relating to the type of scheme and what promoters need to think about for appraisal. It would also be helpful to have clarification on how other (non-modelling) evidence can be incorporated into appraisal.

## **Summary of meeting on 1st March 2018**

- 2.71 Topics for this meeting included: "Addressing Appraisal Criticisms", "Development of a new Appraisal and Modelling Strategy" and "National Transport Model Development".

### **Addressing Appraisal Criticisms**

- 2.72 DfT outlined some recent criticisms of transport appraisal methods and their application, identifying some reasons for this and setting out proposals for responding to the criticism.
- 2.73 A number of helpful comments and suggestions were made in discussion. It was suggested that this is not just something for DfT to tackle; other government departments have a role to play. It was noted that a joint analytical panel has already been established to address cross-department issues on housing.
- 2.74 The panel noted that balancing local and national objectives creates difficulties. Displacement means that the net economic impact is often zero.
- 2.75 DfT was encouraged by the panel to broaden its engagement activities, noting that this would be resource intensive.

### **Developing a new Appraisal and Modelling Strategy**

- 2.76 DfT intends to publish a new appraisal and modelling strategy over the next year. A consultation document will be published in the spring setting out the context and providing a basis for engagement on where DfT should be directing its research, analytical and communication efforts over the next 5 years.

- 2.77 The panel was broadly supportive of the suggested themes which built on discussions at November's workshop. The importance of supporting the application of WebTAG and making better use of existing tools was emphasised. Panel members cautioned against adding more complexity without measures to simplify or support application elsewhere.
- 2.78 It was also noted that the strategy should be driven by the major policy issues that need to be addressed over the next five years.

### **National Transport Model Development**

- 2.79 DfT introduced model elasticities derived from the recently recalibrated National Transport Model.
- 2.80 It was noted that, overall, the elasticities are all looking sensible. Some suggestions were made for 'sense checking', for example, comparing with those from Highways England regional models.
- 2.81 DfT introduced an update on development of NTMv5. The project has demonstrated it is possible to accommodate a 7,000-zone model in VISUM. There may, however, be some challenging trade-offs to face and the panel's views were asked on:
- different forms of segmentation – age, income, car ownership – if there is a choice;
  - strategic representation of traffic speed-flow response in urban areas;
  - how the quality of the model should compare with industry standards, for example, WebTAG.
- 2.82 The panel's views on longer-term priorities for national modelling were also sought.
- 2.83 On the issue of segmentation, it was suggested that a workshop with external professionals might yield some useful insights as others have grappled with similar issues.
- 2.84 It was asked how future-proof the existing segmentation is around mode and purpose. With regards to the latter, there's increasingly a blur between what the primary/secondary purpose is, for example click and collect shopping. Shared approaches to utilisation will blur the mode/ownership distinctions further. It's also important not to prematurely jump to the wrong conclusions about what the future may look like, for example, building designs around Connected and Autonomous Vehicles (CAVs).
- 2.85 In terms of longer term model development, it was suggested freight should be given high priority. It was also noted that we should be considering the role of technology in facilitating "virtual access" (e.g. tele-conferences). One approach might be to consider these technologies as a virtual mode which people are willing to trade-off against conventional forms of mobility.
- 2.86 Panel members suggested it is worth thinking about all the potential requirements of the new model, including the ability to test future policies.
- 2.87 It was suggested that consideration of technology should not be too short-sighted and limited to Connected and Autonomous Vehicles. Technology also provides many alternatives to travel.

## 3. Next Steps

- 3.1 Looking ahead, the panel is in a strong position to build on its momentum and increase its impact in 2018/19. The forward look of topics for the first half of the year will enable it to continue to shape and influence development of the Appraisal and Modelling Strategy as well as inject fresh perspective and challenge into forthcoming discussions on travel behaviour and Road Traffic Forecasts.
- 3.2 To enable panel members to provide more considered comment on JADP topics, we have commissioned further advice on scenarios for the Road Traffic Forecasts and a stocktake of evidence on reflecting uncertainty. We will report on these in the panel's next annual report.
- 3.3 We will also work closely with the panel to identify opportunities to actively and routinely engage with our wider stakeholders.

## 4. Biographies

### **Peter Jones OBE**

- 4.1 Peter Jones is Professor of Transport and Sustainable Development. His PhD, DIC (Engineering) Thesis from Imperial College was entitled: 'The Development of a New Approach to Understanding Travel Behaviour and its Implications for Transportation Planning'. Before joining UCL in 2005, Peter was director of the Transport Studies Group at the University of Westminster where he carried out numerous research projects funded by organisations including the Department for Transport, the European Commission, the Joseph Rowntree Foundation, and BAA.
- 4.2 He is a member of the Independent Transport Commission, the London Roads Task Force, the UCL Grand Challenges Sustainable Cities theme leader for Transport & Sustainable Mobility, and Chair of the RGS-IBG Transport Geography Research Group. He is Overseas Special Advisor to the International Association of Traffic and Safety Sciences, Japan, and a member of the International Steering Committee for the International Travel Survey Conference and a member of the Technical Committee of the South Africa Transport Conference.
- 4.3 He has also acted as a consultant to Transport for London, the European Commission and several national and local governments.

### **Richard Batley**

- 4.4 Richard Batley is Professor of Transport Demand and Valuation and Director of the Institute for Transport Studies (ITS), University of Leeds. With a disciplinary background in transport economics, Richard's specialist expertise covers two related areas: first, valuing qualitative aspects of travel (e.g. journey time, punctuality and comfort) in monetary terms, and second, forecasting the impacts of changes in these qualitative aspects on the demand for travel.
- 4.5 He has operated mainly at the interface between academe and public policy, and can demonstrate lasting impacts from his research, especially in the form of official UK policy and practitioner guidance issued to transport operators and transport scheme promoters. Richard has reported research outcomes to senior public servants and politicians (e.g. to transport ministers, and to the House of Commons Transport Select Committee). He played a leading role in the programme of research, underpinning the Department's 2017 major update to appraisal guidance on The Value of Travel Time Savings.

### **Phil Goodwin**

- 4.6 Phil Goodwin is Emeritus Professor of Transport Policy at University College London and University of the West of England. He was previously Director of the Transport Studies Unit, an ESRC centre of excellence at Oxford University and UCL, a

transport planner at the Greater London Council, and non-executive Director of the Port of Dover.

- 4.7 He was a member of SACTRA and co-author of its three reports on Transport and the Environment (1991), Induced Traffic (1994), and Transport and the Economy (1999). He has carried out research for the DfT and other agencies on travel demand, transport appraisal, road and public transport projects, road pricing, suppressed traffic, smarter choices, wider economic benefits (and losses) and transport strategy.

### **Glenn Lyons**

- 4.8 Glenn Lyons, Mott MacDonald Professor of Future Mobility, UWE Bristol and Mott MacDonald. While remaining fully employed at UWE Bristol, from January 2018 Glenn will be dividing his time between UWE and (on secondment) Mott MacDonald, bridging between academia and practice. His position is helping to further develop the consultancy's transport expertise in relation to understanding and responding to a changing and uncertain mobility landscape, which is shaped by technological possibilities and societal needs and preferences.
- 4.9 From 2002-2017, Glenn has been professor of transport and society at UWE Bristol and was the founding director of the university's Centre for Transport and Society. He was CTS Director from 2002 to 2010 and then from 2010 to 2017 Associate Dean (Research and Enterprise) for the Faculty of Environment and Technology and its 300+ staff alongside continuing to be active as a research professor. His research focuses upon the role of new technologies in supporting and influencing travel behaviour both directly and through shaping lifestyles and social practices. A former secondee and expert advisor to the Department for Transport's Transport Direct initiative for national travel information provision, Glenn has led major studies for the DfT and UK research councils into traveller information systems, teleworking, virtual mobility, travel time use, user innovation, road pricing, public and business attitudes to transport and future mobility. He has been involved in a number of strategic futures studies.
- 4.10 In 2014 he was seconded to the New Zealand Ministry of Transport in the role of Strategy Director and was responsible for leading a major piece of national work examining uncertainty in future demand for travel out to 2042 and its implications for policy and investment. During 2015-16 Glenn led the CIHT FUTURES initiative involving workshops across the UK with members of the Chartered Institution of Highways and Transportation to examine the profession's views concerning future uncertainty and whether or not our existing approaches to transport analysis, policymaking and investment are fit for purpose. In June 2016 he joined the CIHT Board of Trustees and from 2017 now Chairs its Membership and Skills Strategy Board.

### **Anthony Venables CBE, FBA**

- 4.11 Tony Venables is Professor of Economics at Oxford University where he also directs a programme of research on urbanisation in developing countries and the Oxford Centre for the Analysis of Resource Rich Economies. He is a Fellow of the Econometric Society and of the Regional Science Association, and is a Fellow and Council member of the British Academy. Former positions include chief economist at the UK Department for International Development, professor at the London School of

Economics, research manager of the trade group in the World Bank, and advisor to the UK Treasury.

- 4.12 He has published extensively in the areas of international trade and spatial economics, including work on trade and imperfect competition, economic integration, multinational firms, economic geography, and natural resources. Publications include "The Spatial Economy; Cities, Regions and International Trade", with M. Fujita and P. Krugman (MIT press, 1999), and "Multinationals in the World Economy" with G. Barba Navaretti (Princeton 2004).

### **Tom Van Vuren**

- 4.13 A transport modeller and demand forecaster, Tom van Vuren combines an interest in academically sound theory with experience and pragmatism in application to real life situations. As a Visiting Professor at the University of Leeds and a Divisional Director at Mott MacDonald he is well positioned to advise the Department for Transport on making their analytical methods accessible to the profession. He has been a long-term supporter of TASM's efforts to make forecasting and appraisal more transparent, and in particular WebTAG as a tool to improve best practice.
- 4.14 Throughout his career, Tom has emphasised and contributed to knowledge sharing in modelling and forecasting. Between 2008 and 2010 he was Chairman of the Association for European Transport and in that capacity had responsibility for the organisation of the annual European Transport Conference. Since 2006, Tom has organised and chaired Modelling World.

### **Tom Worsley CBE**

- 4.15 Tom Worsley has been a Visiting Fellow in Transport Policy at the Institute for Transport Studies (ITS), University of Leeds since 2011, when he retired from the Department for Transport. During his career at the DfT, he was responsible for managing the team that developed the first versions of the National Transport Model and for the establishment of the WebTAG appraisal methodology. He also held senior level posts overseeing the Department's teams responsible for rail modelling and analysis, for the appraisal of local transport investment and for economic advice on aviation and the environment.
- 4.16 He was Specialist Advisor to the Economic Affairs Committee for their inquiry into the Economic Case for HS2 and to the Treasury Committee between 2015 and 2017. He has carried out research on the interface between transport appraisal and policy and has co-authored a number of reports and research papers on the subject. He has acted as a consultant to TfL and has contributed to the OECD's work on the relationship between transport investment and economic development.

## 5. Terms of Reference

### Aim

- 5.1 The aim of the Joint Analysis Development Panel is to provide strategic comment and recommendations on the Department's approach to developing its transport modelling, appraisal and evaluation guidance and methods.
- 5.2 The panel is jointly chaired by DfT's Chief Analyst, Amanda Rowlatt, and Peter Jones, Director of the Centre for Transport Studies, University College London. It brings together academic and professional experts with senior Departmental analysts.

### Remit

- 5.3 The panel, which meets four to five times a year, will be asked to discuss the overall direction and technical merit of the Department's transport modelling, appraisal and evaluation methods. In addition, the group may choose to focus on specific areas for discussion which will be agreed before each meeting.
- 5.4 The panel has been established to help identify priorities in relation to our analytical strategies and will provide strategic level comment and recommendations. It is not intended to replace the more focused peer review we subject our analysis and research to on a regular basis. We will continue to hold engagement events on topic areas where we look forward to maintaining close and productive working relationships with all our stakeholders.
- 5.5 Over the third year, the panel will provide strategic advice and challenge on priorities for our new Appraisal and Modelling Strategy. It will also provide fresh perspective and challenge into forthcoming discussions on travel behaviour, Road Traffic Forecasts, Uncertainty and Scenarios.
- 5.6 Members generously give their time free of charge to attend meetings. They may, however, be asked to provide further input in terms of preparation of papers and/or presentations for meetings and subsequent follow up on topics for which they will be reimbursed at their daily rate, upon completion of satisfactory deliverables. Any additional work undertaken by individual members in response to requests from DfT will be optional: the availability/willingness to undertake additional work is not a requirement of being on the panel.
- 5.7 The panel will not be discussing details of research specifications or work that is imminently going out to tender.



## Membership

- 5.8 The panel consists of seven external members (including the co-chair). These are senior professionals with a range of expertise, skills and experience and an ability to take a strategic view of Departmental issues.
- 5.9 All members (including the co-chair) are expected to abide by the seven principles of public life (Nolan Principles, attached at Annex A). They will also need to complete and sign a Declaration of Interests (see Annex B) and update as appropriate. The Register will be held by DfT and not shared with third parties.
- 5.10 The group includes a number of DfT senior analysts, including DfT's Chief Analyst who jointly chairs the panel with Professor Peter Jones.
- 5.11 Given the range of issues the panel will be invited to discuss, the core group will be supported by a wider network of subject matter experts who will be invited to attend meetings as appropriate.

Contact details

[TASM@dft.gov.uk](mailto:TASM@dft.gov.uk)